REPORT RESUMES

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THE PEACE CORPS EDUCATIONAL TELEVISION (ETV) PROJECT IN COLOMBIA--TWO YEARS OF RESEARCH. RESEARCH REPORT NO. 2, THE PROJECT'S FIRST SEMESTER--PUPIL ACHIEVEMENT, TEACHER ATTITUDES, AND THE WORK OF THE UTILIZATION VOLUNTEER.

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THE PEACE CORPS (ETV) PROJECT IN COLOMBIA ENCOUNTERED PROBLEMS IN TV PRODUCTION, INSTALLATION, MAINTENANCE, UTILIZATION OF TELEVISED INSTRUCTION, AND LEADERSHIP. BY JUNE OF THE FIRST SEMESTER TELEVISED ELEMENTARY INSTRUCTION INCLUDED ABOUT 390 SCHOOLS, 2,000 TEACHERS, AND 60,000 PUIPLS. EXTENSIVE RESEARCH INTENDED TO PROVIDE A BASIS FOR CORRECTIVE POLICY-MAKING WAS CONDUCTED. IN A FIELD EXPERIMENT, RESULTS FROM 7,100 TESTS GIVEN TO STUDENTS IN 178 CLASSES IN 10 COURSES SHOWED INCREASED ACHIEVEMENT ATTIRBUTABLE TO THE PROJECT. HOWEVER, DIFFERENCES WERE SMALL BETWEEN A CONTROL GROUP AND THREE TELEISION GROUPS, DIFFERING FROM ONE ANOTHER IN THE AMOUNT OF TEACHER INSTRUCTION BY PEACE CORPS VOLUNTEERS. A PANEL STUDY OF ABOUT 250 TEACHERS INTERVIEWED BEFORE AND AFTER THEIR FIRST SEMESTER OF TELEVISED INSTRUCTION SHOWED THAT MANY TEACHERS HAD NEVER COME IN CONTACT WITH VOLUNTEERS ASSIGNED TO WORK WITH THEM, BUT THAT FOR OTHER TEACHERS, FREQUENT CONTACT WITH VOLUNTEERS APPEARED TO HAVE HAD FAVORABLE IMPACT ON THE TEACHERS' ATTITUDES. TO STUDY THE ROLE OF THE VOLUNTEERS WORKING WITH TEACHERS, INTERVIEWS WERE CONDUCTED WITH 30 VOLUNTEERS AND 19 TEACHERS. TECHNIQUES AND PROCEDURES USED BY VOLUNTEERS VARIED SIGNIFICANTLY, AND SEEMED TO HAVE BEEN DEVELOPED AD HOC. MOST VOLUNTEERS FELT CONSIDERABLE FRUSTRATION, DUE TO LACK OF TRAINING AND EXPERIENCE IN EDUCATION. APPENDICES INCLUDE QUESTIONNAIRE ITEMS, SURVEY PROCEDURES, AND INTERVIEW FORMS. (OH)

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EDUCATIONAL TELEVISION (ETV) PROJECT IN COLOMBIA -- TWO YEARS OF RESEARCH

Research Report No. 2:
The Project's First Semester -- Pupil Achievement, Teacher Attitudes, and the Work of the Utilization Volunteer.

By George Comstock and Nathan Maccoby

a report of the
INSTITUTE FOR COMMUNICATION RESEARCH
STANFORD UNIVERSITY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Institute for Communication Research
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November, 1966

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This research was conducted under Peace Corps Contract No. W-276, entitled, "To Provide Continuous Information on the Effectiveness of the Peace Corps Educational Television (ETV) Project in Colombia." This is one of 12 volumes in a series, The Peace Corps Educational Television Project in Colombia--Two Years of Research. Titles of the other volumes and some brief facts on the ETV Project and on the research can be found at the end of this report.

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The Peace Corps Educational Television (ETV) Project was inaugurated in Colombia at the beginning of 1964. The first semester (February-June) of televised instruction for primary school pupils was a period of furious activity, both for the Peace Corps and its Volunteers and for the research staff. We try to give a picture of it here.

In a few weeks, an enormous amount was accomplished by the project. At the beginning of the year, the project existed only in name. There were no television sets in the schools, and very little had been accomplished toward producing any programs. By the end of the first semester, television sets had been installed in about 390 schools. In human terms, this means that by the end of the semester about 2,000 primary school teachers were using television in their teaching, and about 60,000 pupils were receiving televised instruction. Moreover, throughout the semester 300 minutes *each week* of instruction had been telecast, in the form of two 15 minute lessons weekly in each of the 10 primary school subjects.

The authors arrived in Bogota, Colombia's capital and the center for the project, in the third week in January. We faced two principal types of problems. This was the Peace Corps' first ETV project, and its newness demanded that any research be useful not only in the short run, for guiding this project, but also in the long run, for guiding future similar projects. This was a problem involving the conception and focus of the research. The rapid pace of the project's growth, the rush of work and relative unfamilarity with Colombia's educational system resulted in uncertainty and day to day changes in the project's operations, and this demanded research that could be conducted successfully within a context of flux without loss of validity. This was a problem involving designs and techniques.

In this report, we bring together the studies we conducted during this first semester. We found it a rewarding period. It gave us an unusual chance to observe closely from an impartial perspective the practical problems of initiating instructional television under outside impetus in a developing country. There were many, and we give a great deal of attention to them -- partly because they are reflected so clearly in our research, and partly because of their importance for planning projects in any way similar. We also give a great deal of attention to our problems in conducting research, because we feel they are probably representative of those of a very special but not uncommon research situation -- that of research connected with a young project taking root in a developing country. As to the research itself, it not only provided much useful information but also led to a focus for much of the research that followed.

Organization of the Report

In the first part, the research is placed in context by a brief review of the first semester. In the next six, a variety of studies are presented. The final part is devoted to a summary and discussion of our findings. To review the contents:

Part I: The Context of the Research.

Part II: The Field Experiment: The results of a field experiment in which about 13,500 tests were administered to primary school pupils who were receiving instruction under a variety of controlled conditions. The experiment was concerned with the initial effectiveness of the televised instruction, and with the initial effectiveness of the Volunteers -- called "utilization"[1] Volunteers -- who were consulting with teachers on improving teaching.

Part III: The Surveys of Teachers: The results of two surveys of the same group of Colombian teachers, about 250, one conducted before the telecasting of instruction began, the other at the end of the first semester. The surveys were concerned with the teachers' perceptions and attitudes in regard to the project and the Volunteers. They also provide information on the relationship which developed between the Volunteer and the teacher, and on the impact of the work of the Volunteer on the teacher.

Part IV: The Interviews with Utilization Volunteers and Teachers: The results of interviews with the utilization Volunteers and a sample of the teachers with whom they were working conducted at the end of the first semester. The interviews were concerned with the nature of the relationship which developed between Volunteers and teachers, the kind of communication which passed between the two, and the frustrations and dissatisfactions of each with the way the Volunteer utilization, or consulting, program had evolved.

Part V: More on the Volunteer Experience During the First Semester -- Challenges Faced, Problems Feared, and "Critical Incidents" Experienced: The results of part of a questionnaire given to Volunteers shortly after they began work in Colombia, concerned with the experience they felt had posed the greatest challenge to date and with what they perceived were likely to be their most serious problems in successfully fulfilling their assignments; and the results of interviews with Volunteers at the end of the first semester on the problems or "critical incidents" which they had encountered in working with Colombians.

Part VI: A Follow-Up to the Field Experiment of the First Semester: The results of a follow-up to the field experiment. In this study, the classes of teachers given tests during the field experiment were tested again a year later, with everything -- the televised instruction, the tests, and the teachers -- the same except for the pupils, who previously had been in the next lower grade. The classes of 10 teachers were involved, and about 300 pupils were tested at each of the periods, for a total of about 600. The follow-up was concerned with the effect of a year's experience with ETV on the skill of the classroom teacher in utilizing ETV, and with the effect of prior experience with learning from television on the ability of pupils to learn from ETV.

Part VII: A Follow-Up on the Unevenness of Volunteer Contact With Teachers: The results of a follow-up on the finding of the first semester that Volunteers tended to give disproportionate attention to teachers who initially had more favorable attitudes. In this study, samples were drawn of teachers who had had, by their own report, either relatively frequent or infrequent contact with the Volunteer assigned to their school, and the possible bases for the Volunteer's preference were explored in interviews with the Volunteers.

Part VIII: The First Semester's Research -- Summary and Discussion.

Part I: The Context of the Research

In 1963, the Peace Corps, in cooperation with the Agency for International Development (AID), agreed to help the Colombian government establish a nationwide educational television (ETV) system in the public schools. The immediate goal of the Peace Corps' ETV Project was to improve public primary school instruction, which in Colombia encompasses the first five grades. This was the sphere of public education to which Colombia had given priority for development. Colombia not only does not have enough classrooms, but its teachers often have less than a fifth grade education, little training for their jobs, and little in the way of teaching aids, books, or materials. Improvement was to be effected by telecasting instruction directly to pupils, in an ever-growing network of schools and by instructing the teacher, both by television and by face-to-face consultation, in teaching methods. In most other countries, televised material has been used only as a supplement to conventional instruction. In Colombia, it was to provide the core of instruction, and the teachers were to build their own teaching around it. Eventually, it was hoped that the project could extend to other areas -- adult education in literacy, health, agriculture, and other subjects; instruction of persons training to be teachers; secondary school and even university instruction. The ultimate goal of the project was to establish a Colombian ETV system -- which could be a powerful tool for all kinds of education -- independent of outside support.[2]

The Peace Corps was to be an essential component, although it would work in conjunction with Colombians. It was to provide direction and leadership, and sufficient personnel -- in the form of Volunteers -- to implement the project. During the first semester, there were about 85 Volunteers working in ETV. About a third were assigned to the programming and production of televised material, slightly more than half to working in schools with teachers (the "utilization" Volunteers), and the remainder to installing and maintaining TV sets in schools. All were to work with and instruct Colombian "counterparts," who then could later function on their own. AID's contribution was to be financial. It was to provide funds for the purchase of an initial 1,500 TV sets and for necessary studio equipment. The Colombian government was to provide studio facilities, counterpart personnel to work with the Volunteers, and funds for maintaining equipment and operating expenses.

The first semester in Colombia was a busy and at times frustrating period for everyone connected with the project. This would have been true for any project of such scope and intent anywhere, no matter how experienced its administrators and workers, how familiar the environment in which it was to function, and how sophisticated, informed and willing the classroom teachers. However, for the Peace Corps ETV Project in Colombia, everything was new to almost everyone.

Although the Peace Corps had had considerable experience with teaching in primary and secondary schools in Africa, the Middle East, Asia, and the Pacific, it had had relatively little in Latin America. The technology was new to the Peace Corps. It had had no experience anywhere with television, in or out of education. There was also an important organizational difference for the Peace Corps had very little experience with projects in which a large number of Volunteers were to coordinate their efforts as a team, rather than working independently in individual assignments. Only a few of the Volunteers had had professional experience in either television or teaching.

Colombia had twice before, without outside assistance, tried and abandoned efforts at televising primary school instruction, but only a few education officials and teachers had been involved. Moreover, neither attempt had approached the scope -- in terms of the extent of the curriculum to be covered, or the number of schools, teachers, and pupils to be involved -- of the Peace Corps project. Thus, for most of the Colombians who were to participate directly in the project -- whether in planning, operating, or as teachers in the classroom -- educational television was new. The planning and negotiating undertaken by the Peace Corps with the Colombian government prior to the inauguration of the project had been assiduous and careful, but it had primarily involved policy makers. There had been little opportunity for attention to the schools where the televised instruction was to be put to use by teachers. At the outset, the teachers were ignorant of the ETV Project and of the Peace Corps, and the Peace Corps was equally ignorant of the teachers and their schools.

In short, when the project got underway at the beginning of 1964, there was much for everyone to learn and little time for this learning, and it was inevitable that much of it would be at the expense of efficiency. Added to this, of course, were the conditions common to any developing country today -- over-crowded, under-staffed, carelessly administered and poorly equipped schools; poorly trained teachers; hungry and sickly pupils; poor communications; and unreliable and sometimes non-existent equipment, parts, and even electrical power. As a result, although the kinds of problems faced by the project were not uncommon to instructional television, their frequency, seriousness, and unpredictability called for extraordinary efforts to overcome them, and frequent changes in day-to-day operations.

From the beginning, the project's headquarters has been in Bogota, Colombia's capital, where the Instituto de Radio y Television, the quasi-government agency whose television facilities were to be used by the project, has its studios. For the first semester, the project was to be limited to schools in Bogota and the surrounding Department (state) of Cundinamarca.

Early Problems in Television Production

The televised instruction for pupils was to begin in late February, shortly after the schools opened for the new year. Although some of the Volunteers assigned to programming and production had arrived in Colombia as early as late September of 1963, they were unable to accomplish much until January of 1964. There were several reasons. For part of the intervening period, the Colombians with whom they were to work either had not been selected or were unavailable, since the months of November through January are the traditional vacation period. The details of arranging to share studio facilities with the Instituto de Radio y Television, which broadcasts commercially in the evenings, took considerable time. The Peace Corps ETV Project director had to divide his time between Bogota and Albuquerque, New Mexico, where the utilization and TV maintenance Volunteers were undergoing training at the University of New Mexico.

It was decided to begin with the telecasting of 10 primary school subjects, with each course consisting of two 15 minute programs a week and with telecasting limited to the mornings. This amounted to 300 minutes of new television each week. Each program was intended to fill the middle portion of a class hour; the classroom teacher was to precede and follow it with complementary teaching called, respectively, "motivation" and "follow-up." In addition, weekly programs on broad educational topics, such as child psychology, were telecast for the teachers.

The television teachers were Colombians. The producer-directors were Volunteers. The programming -- the outlining of the content for the telecasts and the preparing of Teacher Guides to inform classroom teachers in advance of what was to be covered and to provide suggestions for "motivation" and "follow-up" -- was done by Volunteers and specially assigned Colombian teachers. The matching of the television content to the standard curriculum, which itself was being revised, and disagreements about pedagogy took much time. In addition, the Volunteers had to devote considerable time, concurrent with production, to training the television teachers. Moreover, because of breakdowns in equipment, difficulties of dove-tailing educational and commercial production, and shortages of material for sets and visuals, production itself required far more time than normally would have been necessary. The estimates of Volunteers with prior television experience as to the extra time involved ran from 50 to 150 per cent. As a result of these problems, coupled with the late beginning, production during the first semester was seldom much ahead of broadcast time. Although it was intended to put all the programs on tape in advance, it was occasionally necessary to telecast "live." There was certainly no opportunity to try out any of the programs in advance on a sample audience, prior to their being broadcast to all the schools. Nevertheless, the schedule, ambitious under any circumstances, was largely maintained throughout the semester -- although occasionally a Colombian technician selected the wrong tape for a particular hour, and sometimes the Instituto's transmission facilities failed entirely.

Early Problems in TV Installation-Maintenance

The small group of Volunteers assigned to installing and maintaining TV sets in schools also met with frustrations. Each worked with a Colombian counterpart, whom he was to train. These Volunteers arrived in early January. The schools did not open until February, and often installation had to wait until then when the staff was on hand. If there were to be sets in the schools to receive the telecasts, installation had to be on a rush basis. The lists provided by the Colombian government for installation proved undependable. In desperation, the Volunteers often chose the school nearest the listed address, whatever its name. The fact that the program was intended for Colombia's public schools, and not its many Catholic parochial schools also posed a problem. Because of the long influence of the Catholic Church in Colombia, it was often difficult to distinguish between a public and a private school. Many schools in public buildings are taught by nuns, and many schools housed in Church buildings provide free education. For the purposes of the project, it was decided to define a public school as one open to anyone without payment of any fees. Solving this classification problem typically fell to the utilization Volunteers. It was just one more factor hampering rapid installation.

Every school involved special problems, but some involved more serious problems than others. Some lacked sufficient security (a TV set is a considerable temptation for thievery, since its value in Colombia, used, is about double its U.S. retail price); "sufficient security" usually meant at a minimum that someone, such as the janitor and his family had to be living in the school. Other schools lacked adequate wiring. Outside of Bogota, many communities had irregular electrical service, and installation was a gamble. Because of Colombia's mountainous terrain, reception was uncertain in many communities. Some schools were not ready to agree to installation in a suitable school room -- they preferred the teachers' lounge, the principal's office, or the janitor's quarters. Remarkably, the bulk of the installations for the beginning of the project took place in about three weeks. In this time, sets were installed in about 200 schools. As a result, about 1,000 teachers and more than 30,000 pupils were participating in the ETV Project at the outset.

Early Problems in Utilization

The approximately 50 utilization Volunteers also arrived in early January. Their job was to work individually with teachers in schools to maximize the effectiveness of television at the point of reception. They, too, found they could accomplish little until the schools opened. Even many school officials were still on vacation. They arranged orientation meetings, and although these meetings were well planned and intelligently conducted, only a few teachers and officials were reached. As a result, most teachers first learned of the project when the maintenance or utilization Volunteer visited the school for the first time. The Volunteers had to try to teach them a great deal in a short time, and in an unfamiliar language. Often, the teachers did not understand, and when they acquiesced, it was only out of courtesy. It is hardly surprising that the Volunteers were often frustrated by finding their counsels ignored.

The utilization Volunteers also discovered that their job was not simply a matter of communicating information about teaching methods and using television in teaching. It also involved reorganizing the school around ETV -- for with one set per school and a broadcast schedule encompassing courses in all five grades, classes had to be shifted from room to room, and instruction had to adhere to a new and rigid schedule. Often a class would miss a televised lesson because a teacher forgot the schedule; the class watching the previous program did not vacate the viewing room soon enough; or the lesson conflicted with an activity, such as a play period, traditionally scheduled for the same time.[3] Moreover, the 50 counterparts promised by the Colombian government were never provided, ostensibly because of a shortage of funds.

Early Problems of Leadership

Peace Corps staff leadership of the ETV Project was interrupted abruptly during these first months. Mid-way through the first semester, the Peace Corps Director for Colombia -- the "country director" -- had to include the project among his many other responsibilities when the initial project director resigned for reasons of health. He had about 500 Volunteers active in dozens of other undertakings, and no experience either with television or elementary education. Under these circumstances, he could do little more than watch over the project. This left ETV with a strong leader for major problems, particularly those involving top level negotiations with Colombian officials, but one unable to fill the vacuum on policies for daily operation or to give much personal guidance to individual Volunteers. The unfortunate consequence was a lack of coordination and direction that hampered the quick solution of problems and adversely affected Volunteer morale. This administrative discontinuity was unavoidable, but its consequences were not less serious for that.

We will now turn to the research of this first semester. For the project, this was a period of adjustment and learning, of many problems and frustrations, and of remarkable accomplishments. As we move from issue to issue, and from one study to another, all of these are reflected. If the research is to be understood, it is important that it be seen in the context of the project's first stage of development.

Part II: The Field Experiment

The field experiment was designed to give the Peace Corps feedback on the instructional effectiveness of the two principal components of its program -- the television, and the utilization Volunteers' face-to-face work with teachers in schools. In order to measure the effectiveness of the television, we tested some pupils who had television, and some who did not. In order to measure the effectiveness of the utilization Volunteers, we tested some television pupils whose teachers received no help at all from the Volunteers, some who received only a "restricted" amount of help, and some who received a relatively "full" amount of help. In order to make the feedback complete, we did this for each of the 10 television courses. Eventually, the field experiment involved the administering of about 13,500 tests to pupils during the first semester, 5,000 in a pre-test of procedures, and 8,500 in the experiment itself. The results, although indicating superior achievement by pupils attributable to the television and the Volunteers' help, were provocative and did not encourage complacency.

Background: We will return to the design shortly. First, however, we will review the circumstances which led to its adoption. They are of considerable interest because the research design was directly affected by them.

The reasons for our early interest in the television and the work of the utilization Volunteer are obvious. Together, they are the principal means by which the Peace Corps hopes to up-grade Colombian primary education. We felt we should get some sound information on their effectiveness as soon as possible, so that the Peace Corps would have a basis for future action. If it turned out that some of the courses were less effective than others, then time and effort -- which were at a premium -- could be directed where they were most needed. If the effectiveness of the utilization Volunteer turned out to be less than hoped, then energies could be directed to its improvement. If effectiveness of some or all of the television or of the Volunteer proved particularly striking, then present practices could serve as a model for future emulation. In the same vein, we felt that such information could help in focusing future research -- either on the elimination of inadequacies, or fuller understanding of successes.

Initially, we had ambitions to provide the ETV Project with a continuous index of the effectiveness of the televised instruction on a weekly or bi-weekly basis which could serve as a guide for continually improving the television. Quite soon, it became clear that this would be neither feasible nor useful.

The difficulties of execution would have been enormous. With 10 television courses, this would have meant regularly testing a sizable number of pupils in each, with some presumably restricted from receiving television to provide a standard for evaluating the achievement of those with television. Even if we had tested such a relatively small number as 200 in each course, with 10 courses this would have added up to 2,000 each time. Under the best of conditions, the problems -- of test construction, production, distribution, administration, correction, and rapid analysis -- would be great. In Colombia, and during the beginning semester of the ETV Project, they seemed insurmountable.

Without a gigantic staff, we doubt whether it would have been possible. If we had tried, we would have had to ignore other important research. Even with such a staff, we doubt whether we would have been satisfied with the results, for the harried pace of television production made it unlikely that program content would be known sufficiently in advance to permit good test construction on time. In turn, this meant that there was no hope that the research could be limited to television pupils, thereby reducing the numbers involved. Under this approach, we would have compared item scores within tests to compare the effectiveness of different parts of a course, and total test scores between courses to compare overall effectiveness. This would have required assiduous pre-testing to standardize the difficulty of items and tests, and many weeks of research with detailed knowledge of the television content prior to the actual telecasting. Even an inelegant compromise of simply testing television pupils on the basis of arbitrarily set instructional criteria was not possible on a continuous schedule, simply because we could not get such information regularly far enough in advance to prepare and distribute tests.

Even assuming a more favorable television production schedule, we might have been completely thwarted by problems in the schools. At the beginning, the actual exposure of any group of pupils to the television was chancy. The unfamiliar need to adhere to a rigid schedule for the telecasts, and to shift classes in and out of the room with the one television set in each school, resulted in many classes missing televised instruction they were supposed to see. In addition, technical problems of wiring, power supply, and antenna placement also frequently disrupted regular viewing. It would have been extremely difficult to obtain regularly test results from pupils really exposed to televised instruction.

Although less important by themselves, the logistics of continuous testing would have added appreciably to the problems. Because of their lack of familiarity with the rigorous demands of research testing, we did not feel that we could rely completely on the Colombian teachers to monitor tests, and the job was far too big a one to add regularly to the Volunteers' tasks. Schools were spread out, and difficult to locate from their addresses, and usually not reachable by telephone. The Volunteers, the best source on the state of television in any school, were equally hard to reach. Finally, we doubted whether commercial or Peace Corps facilities could have handled the regular reproducing of the large quantities of tests necessary within even reasonable deadlines.

However, we were not dissuaded solely by the difficulties of execution. We also doubted whether the ETV Project at this time was ready for this kind of continuous, detailed feedback. We felt that the pace of production would have prohibited the useful review and application of findings.

Initially, we had also considered trying to measure the effect of the utilization Volunteer's counsel very finely by relating teacher outcomes to small variations in contact, so that we might specify with some exactness the amount of time or visits which should be devoted to each teacher to achieve maximum effect. This was based on an acceptance of the Peace Corps' initial view of the utilization Volunteer as primarily a consultant in teaching methodology, and the assumptions that his role would be fairly narrowly defined and the information he would impart clear-cut and delimited. Almost at once, we found that this view did not fit reality. Because of the ubiquity of difficulties in adjusting school schedules and organization to the use of television, and of technical problems in assuring reception, we found the utilization Volunteer thoroughly involved in what we have come to term "school development." At the same time, we found his role defined rather vaguely -- "to make ETV work, and get the teachers to 'utilize' regularly and 'well'." We found, too, that the utilization Volunteers, most of whom had no pre-Peace Corps training in education, were largely uncertain about what advice they should give their teachers. Perhaps as a consequence, we also found a plethora in the variety of problems and promising solutions perceived by the Volunteers, leading to a wide range in the ways the utilization Volunteers went about their jobs.

With the character of contact varying so much from teacher to teacher and Volunteer to Volunteer, we felt that it would be impractical to try to relate practical outcomes, best measured in pupil achievement, to small differences in amount of contact. The program was too unsystematic to fit such a research scheme. Since this particular research was to be concerned with the utilization Volunteer's effect on pupil achievement, as mediated by his counsel to the teacher, we concluded that only a measurement based on fairly gross differences in contact would be meaningful. We had to allow ample time for non-instructional problems to be solved, and for a goodly quantity of instructional advice to be given. Otherwise, we would not be measuring what we wanted to measure.

We rejected certain easy solutions which would only have given the appearance of providing feedback on the television and the utilization Volunteer, but would not really have done so. We did not want to use only one or two telecasts as examples, for at best this would merely demonstrate that television can teach and there is ample evidence that it can.[4] We did not want to use only a few of the courses, for then the data would bear only on these. We did not want to merely subjectively follow the work of one or two Volunteers, or to depend entirely on the Volunteers' judgments as to their effectiveness. If possible, we wanted to cover the television in its entirety, to treat of the utilization Volunteers on a broad basis, and to do so objectively by measuring the effects of both with tests of pupil achievement.

Fortunately, we were able to devise a design that permitted us to pursue our interests. Our solution was to conduct a field experiment in which controls would be maintained for the entire semester, but to direct our energies toward a single testing involving all 10 television courses at the end of the semester. The two main variables were the television itself, and the amount of help given teachers by the utilization Volunteers. We decided to limit the television content to be covered in the tests to the two weeks prior to the testing, in order to be as certain as possible that our television pupils received the intended instruction. We felt this would provide a fair sample of the quality of instruction given in each course, and should reflect each course at its best. We felt, too, that this would give teachers and pupils time to become adjusted to the medium. By testing at the end of the semester, we also had time to eliminate classes where reception was irregular. This procedure also promised the minimum probability of disruption from breakdowns in transmission or errors in telecasting. It would give the Volunteers time to have given the teachers plenty of advice on teaching. Finally, it permitted a pre-test of all our procedures -- critically important if we were to be sure of successfully completing the experiment.

__The Design__: In order to measure the effectiveness of the televised instruction, we controlled pupil exposure to television. We tested some television pupils, and some non-television pupils. In order to measure the utilization Volunteer's effectiveness in improving teaching, we controlled the exposure of teachers with television to the Volunteer. We tested some television pupils whose teachers received no help from the Volunteer, some whose teachers received a "restricted" amount of help, and some whose teachers received a "full" amount of help. To cover the television in its entirety, we did this for each of the 10 televised courses. To insure that the test results would reflect the variables, we randomly assigned classes to each of the conditions within the limits imposed by the project's operations.

For __each__ television course, this led to __four__ conditions:

a) Televised instruction plus a full amount of help from the utilization Volunteer.

b) Televised instruction plus a restricted amount of help from the utilization Volunteer.

c) Televised instruction with no help from the utilization Volunteer.

d) Instruction without television, with no help from the utilization Volunteer.

Schematically, this can be represented as follows:

__Condition__:	Instruction by __Television__:	Help from the __Utilization Volunteer__:
a)	Yes	Full
b)	Yes	Restricted
c)	Yes	None
d)	No	None

This design provided baselines by which to assess the effects of the main variables. It permitted use of the no television (condition _d_) results as a baseline for evaluating the effectiveness of the television by itself (condition _c_); of the television only (condition _c_) results as a baseline for evaluating the Volunteer's help (conditions _b_ and _a_); and of the restricted help (condition _b_) results as a baseline for evaluating full Volunteer help (condition _a_).

We were not entirely satisfied with the quality of the no television condition. If teachers adhered closely to the school syllabus, they should cover the same material as the television at the same time. However, there was no way we could be sure that they would do so, and any scheme to rigidly direct their behavior, even if successful, would have resulted in introducing an extraneous variable. This was another reason for testing at the end of the semester, for it made it likely that the material would have been covered at some previous time. However, because of possible teacher omissions and pupil forgetting, we had to recognize that there was some inherent bias favoring the television. At least, we were certain that it was no more likely to affect results for one course than for any other.

As might be surmised, there was some difficulty in achieving an operational definition of "restricted" and "full" Volunteer help. We considered controlling help by having the Volunteer give only certain portions of his standard advice to some teachers. This was based on the assumption that the Volunteer had a fairly clear-cut body of material to impart. As we have said, this proved not to be the case. In addition to being concerned with many non-instructional problems, the content of the instructional communication that was to pass from Volunteer to teacher was only vaguely codified. This is understandable when we consider that few of the utilization Volunteers had any pre-Peace Corps training in education, and that the three months Peace Corps training covered a great deal, including Spanish, in addition to the classroom utilization of television.

Although regrettable, this was simply the circumstance of the program with which we were concerned. If anything, it only made us more interested in measuring instructional outcomes of the Volunteers' work.

As a result, we decided that the only feasible way to control the Volunteer's help was to limit the amount of contact between Volunteers and teachers. "Full" help was defined as the ordinary amount of contact permitted by the project's operations, and "restricted" help as a markedly lesser amount -- contact no more frequent than once every two weeks. No help meant no contact other than that necessary to secure set installation and dependable operation.

Although our interest was in teachers and their classes, it was necessary to use the school as the unit for control. There were several reasons for this. One was that it was the unit around which the Peace Corps built the program, using it for set installation and Volunteer assignment. Thus, much of the television experience would be common to teachers in one school. Moreover, since controls were to be maintained throughout the semester, it seemed unlikely that differences in treatment of teachers within a school could be kept up for so long. As a means of identifying the status of teachers in the design, it was easily communicated to

Volunteers. In addition, classifying the school made it possible to use all its teachers and classes using television in one condition in the design, which helped by reducing the number of physical locations involved.

Selecting Schools: We attempted to assign schools randomly to the four conditions prior to the beginning of telecasting, to work only with schools with all five primary grades, and to use only schools designated by Colombian officials for television. For various reasons, all understandable ones -- and, because the project was in its first stage and because of the lack of order common to the education systems of developing countries, none of these criteria was easy to achieve.

Random assignment was necessary to minimize the possibility of bias favoring one condition over another. Using schools with all five grades meant a minimum number of schools would be needed to obtain any given number of classes in a condition. Fewer schools, in turn, meant better control and minimal interference with the project's ordinary functioning. Using only officially designated schools also was a guard against bias, since we thought it possible -- although the Colombians said not -- that these schools were known for superior instruction or administration.

Although the Colombian officials agreed to the barring of some of their designated schools from television, there were many other problems. Because the drop-out rate is high -- it is estimated that not many more than one out of 10 public school pupils complete the primary years -- many schools include only the first three or four grades. A fairly complete list of designated schools could be obtained only about a week before telecasting was to begin, and its information -- on location, name, and grades covered -- often was inaccurate. Inspection of each school was necessary, and even then the range of grades was sometimes still uncertain. Moreover, installation was well underway, and many schools already had television. No one wished to remove a set once it was installed -- in addition to objections from teachers and Volunteers, the project wanted to begin with as big a receiving network as possible. For designated schools as yet without a set, installation remained uncertain, depending on wiring, security, reception, and teacher cooperation. For the same reasons, even the continued participation of schools with television remained moot.

Because of the uncertainty over the eventual status of any one school, we had to allow for considerable attrition. This somewhat restricted random assignment, since it became necessary to use some of the schools already having television -- which made them eligible only for one of the three television conditions -- in order to allow for losses. However, the only alternative would have been to bring in schools not officially designated for television.

Because we wanted to include as wide a range of pupils reached by the ETV Project as possible, we included schools both in Bogota and in the less urban communities of the surrounding Department of Cundinimarca. Schools which we could be certain would not cover all five grades were eliminated from consideration.

For Bogota, the schools were divided into two groups on the basis of their status about a week before telecasting was to begin: those with sets already installed, and those where sets had not yet been installed. Because Volunteers had already established relationships with teachers in many of the former, they were set aside as "television plus full

Volunteer help" schools. Schools not yet with television where they had also established relationships were treated the same. This was to minimize interference with the project. The remaining schools were distributed randomly among the three other research conditions -- "television plus restricted Volunteer help," "television with no Volunteer help," and "no television." The maintenance Volunteers promised to give priority for installation to the first two categories, and withhold it from the third. At once there was a crisis. Lists were mixed, and within 24 hours sets were installed in the "no television" schools along with those in the other categories. Fortunately, the context of uncertainty which posed so many problems also provided a solution. In the meantime, the list for installation had been increased, and we were able to set aside the new schools as "no television" schools. The former "no television" schools were then randomly distributed between the "television with no Volunteer help" and the "television plus restricted Volunteer help" conditions.

For Cundinamarca, the procedure differed slightly because of the even fewer schools which had all five grades. As with Bogota, schools with sets installed or Volunteer-teacher relationships established were set aside for the "television plus full Volunteer help" condition. However, the smallness of the number of schools with all five grades made it necessary to use only schools barred from television by reception problems for the "no television" condition. The other schools were divided randomly between the two television conditions remaining.

In this way, 55 schools in Bogota and 25 outside Bogota were selected for potential later testing. About half of the schools in both locations fell into the "television plus full Volunteer help" condition. For the final testing at the end of the semester, we intended to sample from those in each condition for which controls had been maintained for the full semester.

The Tests: All tests were constructed from batteries of items written by Volunteers and Colombians in television programming, revised as necessary by the research staff (For an example, see Appendix A). Before use, the items were checked for relevance to the televised material with Colombian television teachers, for these were the best experts on the actual content of the televised instruction. Most items were multiple-choice with four alternatives. For the third, fourth, and fifth grades, items were read and answered by the pupil and the tests consisted of about 40 items; for the first and second grades, because of limited reading ability, the items were read to the class by the teacher and pupils responded by choosing among alternatives on prepared answer sheets, and because of the additional time required the tests had about 30 items. In both the pre-test and the experimental test, the tests covered the instructional content of the television for the two-week period immediately preceding the week in which the testing took place.

The Volunteer Role: Colombian teachers and pupils had had little experience with tests, usually none with multiple choice tests, and no experience with research. Our only reliable, steady contact with each school was the utilization Volunteer to whom it had been assigned. The Volunteers briefed teachers; monitored, distributed and collected the tests; and in many instances generously scored tests. They were indispensable. This Volunteer assistance, of course, was in addition to their adjusting the frequency of their visits to some schools as called for by the research design.

The Results

The Pre-Test Results: These first tests, made at the end of the third week of televised instruction, were only preparatory for the later end-of-the-semester testing. One purpose was to provide us with experience in testing within the framework of the project. Another purpose was to obtain information on the possible interference of what Volunteers said was a common problem with tests in Colombia -- cheating, which in this case might come from either the pupil or the teacher. Because of difficulties of test production and distribution, this trial testing was confined largely to Bogota and was limited to six of the 10 televised courses.[5] However, in order to test in as many different circumstances as possible, we arranged to administer at least one test to a class in every eligible school and to include at least one subject in each grade. Approximately 5,000 tests were administered. On the basis of the results, several conclusions were reached: a) despite pupil inexperience, testing with multiple choice items was feasible; b) every aspect of the mechanics -- construction, production, distribution and administration -- would require assiduous attention and as much allowance as possible for unexpected snags; c) pupil cheating, however common, would not affect the class means, the only scores which could invalidate our findings, but teacher "cheating" -- the providing of answers to the class by the teacher -- would require extensive monitoring by Volunteers. (For the full results of the study on cheating, see Appendix B.)

The End-of-Semester Experimental Tests: The 10 courses included in the televised curriculum for the first semester were as follows:

Course	Grade
Mathematics	I
Lenguaje	I
Lenguaje	II
Natural Science	III
Social Science	III
Natural Science	IV
Social Science	IV
Mathematics	V
Natural Science	V
Social Science	V

From our pool of eligible schools, 15 in Bogota and 11 outside were selected for end-of-semester testing on the basis of Volunteer reports that they met our criterion of the full semester of designated treatment. The number of schools in each of the four conditions was approximately equal. Those in the television plus full Volunteer help condition were a random sample of the eligible schools. Those in the other conditions were all that remained of the initial pool which met the criteria at the time of testing. Unfortunately, we were unsuccessful in designing an adequate test for very young children for one of the first grade courses -- Lenguaje I -- so that we were only able to use results on nine of the courses. For a variety of individual reasons, results were not obtained from all designated classes.[6] Thus, the number of classes on which results are reported for any one course varies from 17 to 22. The average class size was about 40. Overall, approximately 8,500 tests were administered, including those in Lenguaje I and some others which were discarded because of various errors in administration. In the analyses based on the results for the nine courses, 178 classes and about 7,100 individual pupil test scores are represented. Bogota and Cundinamarca results have been combined, since no consistent, interpretable differences appeared between scores for the capital and the less urban Department.

The Experiment Results: We will examine the results for the nine courses from two perspectives. First, we will look at them overall. In doing so, we will treat the results for each television course so that they weigh equally in each condition, and we will compare the results -- consisting of a single overall score for each condition -- over the four conditions. This will amount to considering each course as an equally valid representative of the ETV Project. Our purpose will be to assess the instructional effectiveness of the television and utilization program as a whole. Second, we will look at the results for each course independently. In doing so, we will consider each course as an individual case. Then in looking at these two analyses in retrospect, we will speculate on certain incongruities in the results. Finally, before summarizing our findings, we will present some data validating the success of our efforts to impose special conditions on schools in the design.

The Overall Analysis: To examine the effectiveness of the program as a whole, we combined the scores for all courses within each of the four conditions, and subjected the results to an analysis of variance. The results are shown at the top of Table 2:1. However, before discussing them a brief technical explanation is in order.

We used a one-way analysis of variance that would deal only with differences between the four conditions, and not a two-way analysis that would also test the differences between the magnitude of scores for the various courses. We did this because the only meaningful differences that could occur were those between the four conditions. Since the test for each course was constructed independently, and was not standardized as to difficulty, we expected differences in the magnitude of the scores between courses. Those that occurred could not be interpreted as reflecting differences in the success of television or utilization for the various courses, but only differences in test difficulty. Thus, we chose to confine our overall analysis to differences between conditions.

However, because test difficulty varied, it was necessary to adjust the scores for each course in order to make a one-way analysis of variance. This is because the estimate of "normal" variation which serves as a basis for assessing the significance of differences between conditions comes from the variation of the scores within each condition around the mean (the average) for that condition. Under the circumstances, much of the size of an estimate of "normal" variance would have been due solely to differences in test difficulty. If such an estimate had been used, it would have obscured meaningful differences between conditions. Consequently, we arithmetically adjusted the magnitude of scores for each course individually over the four conditions, so that the set for each course had a mean of 25. This put all the scores on a comparable basis, without affecting the distribution for each course over the four conditions.

In addition, in this overall analysis we treated the mean of the class averages for each course in one condition as a single score for that course and condition. We did this to avoid the effects of differences in the number of classes tested in the various courses and conditions. If we had not, and if condition scores varied by course, those with greater numbers -- for good or ill -- would have had a disproportionate weight.

Table 2:1: Field Experiment Results (June, 1964)

Mean Scores of Pupils in Classes with:

	TV plus Full Volunteer Help	TV plus Restricted Volunteer Help	TV with No Volunteer Help	No TV (and No Volunteer Help)	Variance estimate (between = S^2b) (within = S^2W)	F-ratio	df	p.
All Courses:	26.2* (9)	24.2 (9)	25.6 (9)	23.9 (9)	$\frac{10.70}{2.02}$	5.29	$\frac{3}{32}$	<.01
Individual Courses:								
L II	29.6** (7)	25.4 (4)	25.0 (4)	20.4 (4)	$\frac{80.90}{17.73}$	4.567	$\frac{3}{15}$	<.01
M I	25.8 (7)	25.0 (4)	24.5 (4)	24.7 (6)	$\frac{.20}{.60}$	.335	$\frac{3}{17}$	n.s.
M V	25.9 (6)	24.8 (3)	26.7 (4)	22.7 (7)	$\frac{18.08}{13.52}$	1.337	$\frac{3}{16}$	n.s.
NS III	25.2 (6)	25.6 (3)	23.8 (2)	25.3 (5)	$\frac{1.45}{10.75}$	.134	$\frac{3}{12}$	n.s.
NS IV	26.9 (7)	25.2 (4)	24.5 (4)	23.5 (7)	$\frac{14.46}{4.44}$	3.254	$\frac{3}{18}$	<.05
NS V	26.0 (6)	24.0 (3)	25.2 (4)	24.6 (6)	$\frac{33.3}{6.51}$	.512	$\frac{3}{15}$	n.s.
SS III	25.1 (7)	21.5 (4)	27.8 (4)	25.7 (6)	$\frac{27.92}{8.16}$	3.422	$\frac{3}{17}$	<.05
SS IV	26.5 (7)	22.7 (4)	26.1 (5)	24.5 (7)	$\frac{14.71}{5.53}$	2.659	$\frac{3}{19}$	n.s.
SS V	25.2 (5)	24.0 (3)	26.6 (3)	24.1 (6)	$\frac{5.23}{11.47}$	.456	$\frac{3}{13}$	n.s.

* Average of the nine scores, one for each course, listed directly below. The number in parenthesis is the N, or number of scores on which this averags is based.

**Average of the scores for each class. The number in parenthesis is the N, or number of scores on which this average is based. Each score for a class is the average of all the pupils' scores in the class.

Abbreviations: L=Lenguaje; M=Mathematics; NS=Natural Science; SS=Social Science. Roman numberals designate the grade.

Thus, although about 7,100 pupil test scores in 178 classes are represented, we deal initially only with 36 scores -- nine in each condition, one for each course. In turn, we take the average of these nine in each condition for the condition's single overall score. We should also note that since an analysis of variance tests the significance of variation of several means at one time, its significance is a prerequisite for making selected comparisons between any pair or combination of the means. It guards against taking advantage of chance variations by comparing only the extremes in a set of more than two comparable scores.

Now we return to Table 2:1. As can be seen, the mean scores for each condition -- which are the averages for the class means in each condition for each course -- differ among themselves significantly ($p. < .01$).[7] The differences, although small, tend to show superior achievement for those pupils receiving television, and for those whose teachers received a relatively full amount of help from the Volunteer:

-- The television with no Volunteer help mean of 25.6 is greater than the no television (no Volunteer help) mean of 23.9.

-- The television plus full Volunteer help mean of 26.2 is greater than the television plus restricted Volunteer help mean of 24.2, as well as greater than the television with no Volunteer help mean of 25.6 and the no television mean of 23.9.

-- The greatest single difference, as would be expected, is between the television plus full Volunteer help mean of 26.2 and the no television mean of 23.9.

Taken as a whole, we interpret these results as showing superior achievement by pupils attributable to the Peace Corps ETV project. The trend is discernible and -- except for the "dip" represented by the television plus restricted help mean -- consistent.

However, because none of the "selected contrasts" -- those between the individual conditions -- are great enough to achieve statistical significance when taken alone, we are hesitant to go much further. From a conservative viewpoint, one can only say that the program taken as a whole -- television and the Volunteer's help combined -- did have a measurable effect.

Nevertheless, we do think we should point out that the difference between the television only and no television means is 1.7, while the difference between the television plus full utilization and the television only means is only .6. Furthermore, the television plus restricted help mean is actually lower than the television only mean. This hints -- and we do not feel we can offer it as a conclusion -- that the television had a greater effect on achievement at this time than the utilization Volunteer's counseling of the teacher.

An alternative view is that the effective amount of teaching help given by the Volunteer in all three television conditions, whatever the degree of contact, was so closely alike that all merely represent television plus "some" Volunteer help. This would assume that the Volunteer exhausted his repertoire in the television only schools in the unavoidable interaction with teachers while insuring television operation. This is certainly a possibility, and from this perspective differences among the television means only reflect chance variation. It is important to note that this view does not affect our major finding -- that the achievement of pupils reached by the project during the very first semester was greater than that of those excluded.

The Individual Courses: Although the conditions of viewing and the basic format -- two 15 minute telecasts a week featuring a single television teacher -- were the same for all courses, differences of subject matter, grade of pupils, and producer-director and television teacher combined to make each somewhat singular. Consequently, we had intended from the beginning also to examine the results for each individually.

The data also appear in Table 2:1. For each course, the treatment is analogous to that for the overall analysis. The results for each were subjected to a one-way analysis of variance. In this case, the mean of each class was treated as the single score for the class. For any course, there are as many scores for a single condition as there were classes tested under that condition. Thus, the initial number of scores in each course analysis varied from 17 to 22 over all four conditions, although hundreds of pupils were represented. In the end, we will look at only one score for each condition for each course -- the mean of the class scores. For simplicity, we have used the adjusted scores on which the overall analysis was based. Since the adjustment only affected magnitude and not variation, the results are identical to those that would have occurred using the original scores.

As can be seen in Table 2:1, the sets of scores for three of the courses vary significantly. These are Lenguaje II ($p. < .01$), Natural Science IV ($p. < .05$), and Social Science III ($p. < .05$). Two have score patterns interpretable as showing superior achievement attributable to to the combined effects of television and the utilization Volunteer's help, and one does not.

The two which pose no problem for interpretation are Lenguaje II and Natural Science IV. For each, there is an increase in scores for each condition from the baseline established by no television that is consistent with the view that each condition progressively added to learning.

-- For Lenguaje II, the no television mean is 20.4, the television only mean 25.0, the television plus restricted Volunteer help mean 25.4, and the television plus full Volunteer help mean 29.6.

-- For Natural Science IV, the no television mean is 23.5, the television only mean 24.5, the television plus restricted Volunteer help mean 25.2, and the television plus full Volunteer help mean 26.9.

-- For both courses, the television only means are greater than the no television means, the television plus restricted Volunteer help means are greater than the television only means, and the television plus full Volunteer help means are greater than the television plus restricted Volunteer help means.

We can readily interpret the results for each of these courses without further analysis in exactly the same way as we interpreted the overall results. We can say that they show superior achievement by pupils in these courses attributable to the Peace Corps ETV project. We can also qualify the overall results by saying that at the time these were the two standout courses.

However, before going further, we must test the "selected contrasts" -- that is, make comparisons between the individual conditions. These results are shown in Table 2:2. Of all the possible meaningful comparisons, only two are statistically significant, and they involve the same pair of conditions for both courses. The comparison is between television plus full Volunteer help, which represents the project at maximum impact, and no television, which represents the non-project baseline. For Lenguaje II, the former mean is 29.6 and the latter 20.4 (p. < .01). For Natural Science IV, the former mean is 26.9 and the latter 23.5 (p. < .01). This leaves our interpretation just about where it was -- that the project -- television and the Volunteer's help combined -- had a measurable effect for these courses.

Since significant overall variation is a prerequisite for legitimately seeking significant "selected contrasts," we did not test any of the many possible individual comparisons for the other courses. We do think it noteworthy, however, that the total pattern is roughly consistent with the trend of scores in the earlier overall analysis, and that this trend did not depend alone on the scores for Lenguaje II and Natural Science IV. When we look at the nine courses' pattern, we see that:

-- For seven of the nine courses, the television plus full Volunteer help means are greater than the no television means.

-- For seven of the nine courses, the television only means are greater than the no television means.

-- For eight of the nine courses, the television plus full Volunteer help means are greater than the television plus restricted Volunteer help means.

-- For only four of the nine courses are the television plus restricted Volunteer help means greater than the television only means.

This pattern, taken alone, would suggest to us the same interpretation that we gave the overall analysis. However, it does give slightly more dramatic emphasis to the tendency for the scores to "dip" in the

Table 2:2: "Selected Contrasts" Between Individual Conditions for Lenguaje II and Natural Science IV.

Course:	TV plus Full Volunteer Help	TV plus Restricted Volunteer Help	TV with No Volunteer Help	No TV (and No Volunteer Help)	Difference	t.	p.
L II			25.0 (4)*vs.	20.4 (4)	4.6	1.54	< .10
NS IV			24.5 (4) vs.	23.5 (7)	1.0	.76	n.s.
L II		25.4 (4) vs.	25.0 (4)		.4	.13	n.s.
NS IV		25.2 (4) vs.	24.5 (4)		.7	.47	n.s.
L II	29.6 (7)vs.	25.4 (4)			4.2	1.60	< .10
NS IV	26.9 (7)vs.	25.2 (4)			1.7	1.29	n.s.
L II	29.6 (7)		vs.	20.4 (4)	9.2	3.50	< .01
NS IV	26.9 (7)		vs.	23.5 (7)	3.4	3.06	< .01

*Number in parenthesis is the N, or number of scores for classes on which the average shown is based. The score for each class is the average of all pupils' scores in the class.

Abbreviations: L = Lenguaje; NS = Natural Science. Roman numerals designate the grade.

television plus restricted help condition. We will now look more closely at this incongruity, beginning with the puzzling results for the remaining course whose four scores varied significantly -- Social Science III (p. < .05).

An Incongruity: Although varying significantly, the four scores for Social Science III by themselves do not readily suggest an interpretation. No problem is posed by the television only mean of 27.8 being greater than the no television mean of 25.7. However, the television plus full Volunteer help mean of 25.1 and the television plus restricted help mean of 21.5 are both lower than either of these. What is to be made of this?

We can only speculate, and we must caution that our comments should be taken in this vein. However, we have been led to our speculations by further examination of the test results with the benefit of other information bearing on the courses, and we feel we should do so rather than risk having a possibly meaningful interpretation overlooked.

The outstanding feature of the Social Science III results is the "dip" in the scores for the television plus restricted help condition. When we look at the results for the other courses, we find that this also occurs for Social Science IV and V. It occurs for only one of the three Natural Science courses (V), and for only one of the two Mathamatics courses (V). Of the five instances, three are for the three Social Science courses.

This led us to give Social Science as a subject careful consideration. From our teacher survey for this semester, we knew that all the Social Science courses were lowly evaluated by the teachers. This unpopularity of Social Science as a subject continued in other semesters, even after these courses were thoroughly revised.[8] We found the primary reason to be the teachers' conviction that the television covered too much material. Apparently, they felt this way because the subject matter -- history, geography, and civics -- to them demands rote memorization, and the television's broad coverage provided more than they found they could comfortably treat in this manner. As a consequence, they felt frustrated in their teaching built around the courses and came to dislike the television in this subject.

The utilization Volunteers were well aware of how their teachers felt, for our survey data were complemented by numerous reports from Volunteers of teachers' complaints about Social Science. It is pertinent, too, that the complaints stemmed from dissatisfaction over the very area in which the Volunteers were presumably advising the teachers -- the utilization of the television. Our speculation is that in these circumstances the lesser amount of help given by the Volunteer in the restricted help condition led to such clumsy utilization by the teacher that it actually interfered with the television's effectiveness.

In considering this argument, it should be remembered that the Volunteer usually discouraged rote memorization in favor of more creative teaching. Quite possibly, then, with television only, the teacher followed his own wont with some success; with full help, he made a reasonably effective beginning with non-rote teaching; but with restricted help, he did neither well. We would not be surprised if the Volunteer so raised the teacher's anxiety without giving him any way to reduce it in restricted help for Social Science that he abandoned utilization almost entirely. However, this too is speculation.

If this is so, it means that painstaking attention from the Volunteer is especially important when teachers are severely troubled over utilization. Even if we accept the idea of such interference, however, we feel we must reject the notion that the Volunteer does not help at all because of the general superiority over all other television means of the television plus full help means and the fact that these full help means produced the only significant "selected contrasts" in the examination of the Lenguaje II and Natural Science IV results.

We must add that Lenguaje II, for which results were positive and significant, also was lowly evaluated by the teachers at this time. However, the reason -- that the course "entertained" rather than teaching -- was quite different. It did not lead to the conflict over utilization that the Social Science courses did.

Of course, it is quite possible that Social Science III was just particularly ineffective in putting across its content goals, and this led to wide variation in results. In our opinion, however, the Social Science III results are merely symptomatic of a general problem with the subject in Colombia when it is taught by television.

Validity of the Independent Variables: Two independent variables were employed in the field experiment: a) the televised instruction, and b) the amount of help given the teacher by the utilization Volunteer as measured by the frequency of the Volunteer's contact with the teacher. How certain can we be that our manipulations of these variables were successful?

The televised instruction poses few problems. We know that the schools in the no television condition did not clandestinely receive television because they were without TV sets. For the television schools, we recognize that there were various disruptions affecting exposure during the semester -- wrong lessons telecast, transmission breakdowns, TV set failures, and the like. However, those involving telecasting would have affected all the schools equally, and those involving the set would have been randomly distributed among the schools. We see no reason to think that there was any bias related to television experience for the preparatory period prior to the four lessons covered in our tests. During the latter two weeks, there were no telecasting disruptions. By this time, too, set failures for semester-long users were rare, and we know of none in this period among our chosen schools. In our verification of school status, of course, schools with chronic reception problems were eliminated from the design. We are confident that as a variable television was successfully controlled.

We do recognize that there was one factor bearing on pupil exposure to the television that probably did vary unevenly for the various television conditions. This was the help of the Volunteer, which presumably would have increased the likelihood of exposure through the better solving of in-school problems of scheduling and organization. However, this "extraneous" factor is merely another effect of the Volunteer's help and we would expect its benefits to be reflected along with those for teaching advice in the "restricted" and "full" help scores when compared to those for television with no help. Although we have no way of precisely assigning a portion of any superior achievement in these two conditions to this kind of help, its presence gives further impetus to the view that the Volunteer's teaching counsel added relatively little to the television. Put another way, if the Volunteer's help increased the quantity or quality of mere exposure, then whatever achievement is associated with "help" is partly due to television -- although in practical terms that television exposure itself is attributable to the Volunteer's work. Such an interpretation does not affect any importance that may be attached to the help, but does bear on its character. It simply means that the role of advice on teaching may have been even less than the scores would indicate.

As to the manipulation of the Volunteer's contact with teachers, we are certain that our schools at least roughly fitted the dichotomization we intended. In our verification of school status, we eliminated all schools which for some reason had not received the designated treatment. Within any one of the conditions with television there was certainly some variation in contact. We know this would have been true for individual teachers because concurrent survey data -- presented in the next section -- indicated that contact for a teacher did not always equal that for a school (and there would have had to be some contact even for the "television only" schools in order to insure set operation and viewing). We consider such variation in the schools in our design to be an inherent part of it, since we aimed at reflecting the utilization program as it actually operated. However, we do have empirical evidence that the ceiling of contact we imposed in the "restricted" help schools did result on the whole in less than the ordinary amount. This evidence consists of the reports of the teachers themselves in an end-of-the-semester survey on Volunteer contact.

The data appear in Table 2:3. They compare the reports of teachers in schools not restricted as to Volunteer attention with those from teachers in "restricted" and "television only" schools on conversations with the Volunteer and Volunteer school visits. Because our "full" help schools were in effect a sample of all the schools with television (outside of those with television assigned to special treatment in the field experiment), we have used the replies of all teachers from all of these schools in order to obtain the most dependable measure possible of contact for schools receiving an ordinary or "full" amount of attention. Because of the small number of teachers in our survey in either the "restricted" or "television only" categories when taken alone, we have combined the results for these two categories. The data are presented in terms of reports of relatively infrequent contact. We have used the same degree of contact -- once every two weeks or less -- which we used to define operationally "restricted" help.

As can be seen, reports of relatively less frequent contact came more often from the "restricted" help and "television only" teachers than from the ordinary or "full" help teachers. In regard to school visits, 59.4 per cent of the former report relatively infrequent contact, but only 46.7 per cent of the latter do. In regard to conversations, 67.6 per cent of the former report relatively infrequent contact, but only 55.6 per cent of the latter do. Admittedly, this is not ideal validation of the manipulation, since one of the categories involves only a few cases and even building up these required the combining of replies from two conditions in the experiment. Nevertheless, this comparison gives us valuable assurance that we had some success in affecting the conditions we desired under the very trying circumstances of this first semester.

Table 2:3: Teacher Reports of Volunteer Contact for Two Groups of Teachers -- Those in Schools Classified as Receiving "Full Volunteer Help" and Those in Schools Classified as Receiving "Restricted" or "No" Volunteer Help

	Per Cent of Teachers Reporting Relatively Limited Volunteer Contact*			
	Schools Classified as			
	Full Volunteer Help	N **	Restricted and No Volunteer Help	N **
School Visits	46.7	197	59.4	32
Conversations with Teacher	55.5	198	67.6	34

*Per cent saying that contact occurred only once every two weeks or less.

**Number of teachers on which per cent is based.

Summary and Discussion: In the field experiment, we attempted to control exposure to the television and to the help given the teacher by the Volunteer so that we might measure the instructional effectiveness of the ETV Project as it was operating during its initial semester in Colombia. In analyzing the results overall, and counting each course as an equally valid representative of the project, we found superior achievement for pupils reached by the project. In analyzing the results individually for each course, we found Lenguaje II and Natural Science IV to be standouts in effectiveness. The results did not permit us to go further, although there was a hint that television had a greater instructional impact than the Volunteer, and we were led to speculate that Volunteer help was particularly critical when teachers found utilization for a subject unusually troublesome. In all cases, the magnitude of differences, even when significant, were rather small.

In assessing this outcome, it should be noted that the field experiment represented the application of the most arduous of possible criteria at a very early stage in the project's development. This criterion was the actual learning of course content by pupils. We applied it at this time because we felt any findings -- positive or negative -- would be most useful as a basis for planning rather than for some sort of terminal evaluation. We did not repeat such a design, although we did test pupils and also their teachers in other contexts, because we felt that other kinds of feedback and research later would be more fruitful for the Peace Corps.

It is clear that while the project had a measurable effect on pupil achievement, the effect was not dramatic. Overall score differences were small, and only two of nine courses led to significant, positive differences.

We were disappointed that we could not find measurable separate effects for television and for the utilization Volunteer. It is likely that the variations inherent in a "real life" situation obscured many very real individual gains.

We think it noteworthy that there is no evidence to suggest that by the end of the initial semester the introduction of television was accompanied by a penalty of temporarily decreased achievement by pupils. In retrospect, it is clear that the television initially brought considerable confusion to many schools, and much time ordinarily devoted to instruction was lost. It was possible that the end result would be reduced achievement for a time by those using television. If this occurred, it had ceased to do so by the period of our testing.

This study provided a focus for much of the research that followed. Given the large number of utilization Volunteers in the project, we became concerned with improving their effectiveness and with measuring their impact outside of instruction *per se*. We report on these studies elsewhere.[9] Even taken by itself, we feel this focusing of research interest was a sufficient dividend from the field experiment.

Part III: The Survey of Teachers

In addition to the field experiment, we also attempted to obtain feedback on the project's first semester by surveying the same sample of school teachers both before and after this initial semester of television. The results answer some important questions:

How much contact did the teachers actually have with the utilization Volunteers?

Was the degree of contact roughly the same for all teachers, or was there noteworthy variation?

If the Volunteer chose to work more closely with some teachers than with others, on what grounds did he do so?

What were the effects on the teacher, if any, of contact with the Volunteer? What impact did the Volunteer have?

How did the teacher perceive the Volunteer and his role in the project?

How did the teacher think his status was affected by using television?

In what ways did the teacher's preconceptions and expectations -- about the Volunteer, the television, and the project -- change as the result of a semester of experience?

The Data-Gathering: There were two surveys. The first took place the week before televised instruction began. The number of teachers responding was fairly large -- about 750 -- and constituted a random sample of teachers who were to be using the television, including some from schools in each of the conditions in the field experiment. The second took place at the end of the semester, covered a sub-sample of teachers who had responded to the first survey, and the number responding was about 250. A description of sampling and survey procedures will be found in Appendix C. The analysis we will present is concerned solely with the teachers responding to both surveys -- either because our interest lies in their reports after a semester's experience, or because we wish to relate these replies to those made earlier. So that we will represent the project as it was actually operating as accurately as possible, we will exclude teachers from schools assigned to conditions in the preceding field experiment calling for special limited treatment except in some instances in which we are interested in the effects of particular variables -- such as Volunteer contact -- whatever their cause. The number remaining with which for the most part we will be working is 202 teachers. In any particular presentation the number of cases also varies somewhat because percentages are based only on those actually replying to the question or questions concerned.

The Findings

Volunteer-Teacher Contact: In interviews -- reported fully in the next section -- with 19 teachers using television in Bogota at the end of the first semester, randomly selected and each representing the work of a different utilization Volunteer, we found a surprisingly large number who said they had had almost no contact with the Volunteer. Of the 19, seven made such replies as, "He does not come," and "I have not seen her." This suggests that a fairly large proportion of the teachers had been left out of the utilization program during the first semester -- a fact which the survey results confirm.

The reports of the teachers on Volunteer visits to their schools and on individual conversations with the Volunteer on the television are shown in Table 2:4. Responses of teachers in schools assigned to conditions in the field experiment calling for less than "full" help from the Volunteer have been excluded, so these replies represent the normal operation of the project.

These are estimates of the average frequency of contact with the Volunteer over the preceding semester. In regard to school visits, 12.7 per cent said the Volunteer made a "rare" visit, 8.1 said he visited less than once every two weeks, 25.9 per cent said he visited once every two weeks, 22.8 per cent said he visited once a week, and 30.5 per cent said he visited twice a week. In regard to conversations, 24.2 said conversations were "rare," 9.6 per cent said they occurred less than once every two weeks, 21.7 said they occurred once every two weeks, 22.2 per cent said they occurred once a week, and 22.2 said they occurred twice a week.

For some teachers and schools, this clearly reflects a great deal of contact with the Volunteer. However, the replies are spread out over all the categories, and a good many teachers and schools equally clearly had very little contact. Personal contact, represented by conversations, was reported as "rare" by about one out of four teachers, and even school visits were reported as "rare" by more than one out of 10 teachers. In our field experiment, we chose no more than one visit every two weeks to a school as representing a "restricted" amount of Volunteer help. If we apply this arbitrary criterion here, we find that 46.7 per cent reported school visits as falling within this category.

The corresponding figure for conversations if 55.5 per cent. In short, the way the program was operating left many teachers out of the Volunteer's range during this semester.

Moreover, we would call attention to the lack of equivalence between the distribution of reports on school visits and conversations. This can be seen most clearly by comparing the reports of visits and conversations for the extremes of contact -- either frequent or infrequent -- in Table 2:4. For the extreme of frequent contact (twice a week), the per cent for visits is 30.5 but for conversations only 22.2. For the extreme of infrequent contact ("rarely"), the per cent for visits is only 12.7 but for conversations 24.2. The trend is for teachers to report conversations as less frequent than school visits. This would suggest that for any given frequency of school visits, there are some teachers in the school who have less frequent individual contact -- who are, in short, relatively left out. In comparing the reports of individual teachers, we found that 27.3 per cent -- more than one-fourth -- of those for whom school visits were above the bottom category (thereby permitting conversations to fall into some lower category) had less frequent individual contact than visits to their schools would indicate. For each degree of school visits, we show the per cent reporting a lesser frequency of conversations in Table 2:5. For example, of the teachers reporting school visits at twice a week, 30.0 said they had some lesser degree of conversations, or personal contact. Of course, as the degree of contact represented by a category gets lower, there is some tendency for the per cent reporting conversations as less frequent than school visits to drop simply because likelihood has declined, and it is impossible for a teacher

Table 2:4: Teachers' Reports of Volunteer Visits to Their Schools and of Conversations with the Volunteer about Television Programs

	Per Cent of Teachers Reporting:	
	School Visits	Conversations
Twice a week	30.5	22.2
Once a week	22.8	22.2
Once every 2 weeks	25.9	21.7
Less than once every 2 weeks	8.1	9.6
Rarely	12.7	24.2
N* =	(197)	(198)

*Number of teachers on which per cents are based.

Table 2:5: Teachers' "Under-Visited" by Volunteer

Teachers Reporting School Visits:	Per Cent of Teachers who Reported Conversing with the Volunteer Less Frequently than School was Visited	
Twice a week	30.0	(60)*
Once a week	24.4	(45)
Once every 2 weeks	27.5	(51)
Less than once every 2 weeks	25.0	(16)
All above inclusive	27.3	(172)

*Number of teachers in each category on which per cents are based.

reporting school visits as "rare" to report a less frequent degree of personal contact because that is the lowest category. However, it is noteworthy that even among those reporting relatively infrequent school visits, there are a fair proportion reporting less personal contact (for once every two weeks, 27.5 per cent; for less than once every two weeks, 25.0 per cent).

This has some very real implications for a project concerned with working with teachers in schools. It raises considerable doubt about the utility of the school as a unit of task-management. For an administrator, it suggests that the use of the school as a unit may be misleading as an index of individual contact, for a Volunteer may maintain a rigid schedule of visits while actually having very little, if any, contact with many teachers. For a Volunteer, it suggests that the school may be a self-deluding unit around which to organize work, for its use may permit the overlooking of many individual teachers.

On What Basis Did the Volunteer Choose to See More or Less of a Teacher? We now turn to a puzzling question on Volunteer behavior. Why did the Volunteer choose to have more contact with some teachers than others? A likely explanation is that the Volunteer chose to see more of those teachers whom he perceived as being more favorable toward the ETV Project. Fortunately, our teacher survey data allows us to test this hypothesis.

To do so, we use data on the teachers from both surveys. We will relate attitudes toward television existing prior to the semester to actual later contact with the Volunteer. Since the attitudes were measured prior to contact with teachers, contact can hardly be considered

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to have caused them. If the Volunteer's perception of a favorable attitude disposed him toward greater contact, we would expect teachers with more favorable initial attitudes to have had more frequent later contact.

The results are shown in Table 2:6. For an index of attitudes toward the project, we took the teacher's belief in how much television could help him in his own teaching. We consider this to be our best indicator of overall disposition toward the project. As can be seen, initial attitude was related to later contact with the Volunteer, with teachers with more favorable attitudes being more likely to have more frequent later contact ($p. < .05$). The percentages tell the story clearly. Of teachers with a more favorable initial attitude, 47.3 per cent had a relatively high degree of later contact. Of teachers with a less favorable initial attitude, 30.3 per cent had the same amount of later contact. This tends to support our hypothesis that the Volunteer partly based his contact, although probably unwittingly, on his perception of a favorable attitude toward the project.[10]

Taking this finding as a lead, we further explored relationships between later contact with the Volunteer and pre-semester attitudes. There were three other questions in the pre-semester survey reflecting attitudes toward the project -- on how much help the Volunteer would be able to provide, on how well the pupils would like the television compared to conventional classes, and on how many pupils would pass compared to conventional classes. We relate later contact to the replies to these questions in Table 2:7. If Volunteer perception of favorable attitudes toward the project led to greater contact later, we would expect those who later had more contact to be more likely to make favorable replies

Table 2:6: Relationship between Teacher's Initial Attitude and Later Frequency of Contact with the Utilization Volunteer

Teacher's Later Contact with the Volunteer	Teacher's Initial Attitude: Less Favorable (Said TV would improve teaching somewhat, a little, or not at all)		More Favorable (Said TV would improve teaching a great deal)	
	Per Cent		Per Cent	
More Contact (one or more conversations per week)	30.3	(10)*	47.3	(78)
Less Contact (one conversation every two weeks or less)	69.7	(23)	52.7	(87)
	100.0	(33)	100.0	(165)

$X^2 = 3.207$
p. < .05 (one-tailed test)

*Numbers in parentheses are the number of teachers on which the per cents are based.

Table 2:6: Relationship between Teacher's Initial Attitude and Later Frequency of Contact with the Utilization Volunteer

	Teacher's Initial Attitude			
	Less Favorable (Said TV would improve teaching somewhat, a little, or not at all)		More Favorable (Said TV would improve teaching a great deal)	
Teacher's Later Contact with the Volunteer	Per Cent		Per Cent	
More Contact (one or more conversations per week)	30.3	(10)*	47.3	(78)
Less Contact (one conversation every two weeks or less)	69.7	(23)	52.7	(87)
	100.0	(33)	100.0	(165)

$X^2 = 3.207$
$p. < .05$ (one-tailed test)

*Numbers in parentheses are the number of teachers on which the per cents are based.

Table 2:7: Initial Attitude Differences between Teachers with Whom the Volunteer Was to Choose to Have More or Less Contact

	At End of Semester		
	Less Contact (one conversation every two weeks or less)	More Contact (one or more conversations per week)	p.
At Semester's Beginning Teachers who Say That:	Per Cent	Per Cent	
The Volunteer is capable of giving the teacher great help	77.8 (135)*	87.0 (108)	< .05 (one-tailed)
Pupils will like TV classes more than non-TV classes	74.3 (136)	78.3 (106)	n.s.
More pupils will pass with TV than without	74.8 (135)	84.1 (107)	n.s.

*Number of teachers on which per cent is based.

before the semester began. As can be seen, this occurred to a significant degree only in regard to the help the Volunteer could provide ($p. < .05$). However, the trend is the same for the other two items.

We also asked the teachers some questions that we felt would reflect their assessment of the effect on their status of teaching with television. There were three such questions, each asking the teacher whether he believed teachers using television would be thought fortunate by one of three groups -- other teachers, persons in authority, and parents of pupils. We would assume that such beliefs would be related to a favorable disposition toward the project. If so, and if Volunteer perception of such an attitude led to greater contact later, we would expect those who later had more contact to be more likely to have expressed such beliefs before the semester began. The data appear in Table 2:8. None of the differences in the frequencies of such pre-semester beliefs between the more and less contact groups is significant. However, for all three items the trend is the same, with the per cent holding the belief greater among those who were later to have more contact with the Volunteer.

Taken as a whole, the evidence is rather convincing that Volunteer perception of initial teacher favorability disposed the Volunteer toward greater contact with those teachers. The attitude items which we have related to later contact are not just a few picked out because they support our hypothesis, but all the attitude items in the survey. The two for which there are significant differences in early attitudes between the groups which had more and less later contact -- on the degree television might help in teaching, and on the help the Volunteer might provide -- are certainly those with the most pertinent content.

The similar trend for other attitude items, and for the status items, merely strengthens the interpretation.

In the context of the project's operation, this is an important finding. It suggests that informal selection usurped what should have been a major administrative decision -- whether teachers less favorably disposed toward the project, who present a greater challenge and more frustration for the utilization Volunteer, should receive more, less, or equal attention. It also suggests that in the absence of clear-cut guidelines for behavior, subtle human cues may shape personal interactions so as to give an unexpected but consistent bent to the functioning of an organization.

What Effect Did Volunteer Contact Have On the Teacher? If favorable teacher attitudes were a cause of more frequent contact with the Volunteer, as the evidence suggests, then we would be chary of interpreting any positive relationship between attitudes and contact as an effect of contact. This is the familiar "cause-effect" dilemma. If we only had measurements from one point in time, we would be forced to speculate about what might be considered an effect of contact -- although we might have replies to a wide range of questions and a sound rationale on which to base whatever conclusions we reached. Fortunately, our possession of data on the same teachers from two points in time -- before and after the semester -- permits us to do much better than this.[11]

What we are able to do is hold initial opinion constant while we examine the effect of contact with the Volunteer on changes in opinion. We will do this for three items in both surveys -- on the help television could give in teaching, teacher's opinion of pupils' preference for

Table 2:8: Initial Status Perception Differences between Teachers with Whom the Volunteer Was to Choose to Have More and Less Contact

	At End of Semester		
	Less Contact (one conversation every two weeks or less)	More Contact (one or more conversations per week)	p.
At Semester's Beginning Teachers who Say That:	Per Cent	Per Cent	
Other teachers think a teacher with TV is fortunate	72.3 (137)*	80.4 (107)	n.s.
Persons in authority think a teacher with TV is fortunate	78.5 (135)	84.1 (107)	n.s.
Parents think a teacher with TV is fortunate	77.8 (135)	81.1 (106)	n.s.

*Number of teachers on which per cent is based.

television over conventional classes, and the help the Volunteer is capable of providing. For each item, we will do this by dividing the sample into two groups on the basis for their pre-semester replies:

-- Those who at the semester's beginning were relatively more favorably disposed toward ETV.

-- Those who at the semester's beginning were relatively less favorably disposed toward ETV.

Then, for each of these groups separately, we will examine the effect of contact over the semester. Presumably, this eliminates initial attitude as a determinant of contact for each group, thereby making it possible to interpret relationships between contact and attitude as an effect of contact.

Let us look first at those teachers whose initial attitudes were more favorable toward ETV. The data appear in Table 2:9. If these teachers changed, it could only be in a negative direction. What was the relationship between contact with the Volunteer and change in attitude? In Table 2:9, we can see that for those teachers who were initially more favorable, fewer with more contact changed their attitude in a negative direction than did those with less contact. Of those who said television would help or reinforce their teaching a great deal, 9.4 per cent of those who had more contact changed negatively, but 21.5 per cent of those who had less contact changed negatively. Of those who said pupils would much prefer television over conventional classes, 25.4 per cent of those who had more contact changed negatively, but 35.6 per cent of those who had less contact changed negatively. Of those who who said that the Volunteer could give great help, however, almost equal proportions of those having more and less contact changed negatively.

Table 2:9: Change in Teacher Attitude and Contact with Utilization Volunteer during the First Semester Among Initially More Favorable Teachers

Per cent of teachers who initially were more favorable who later changed to become less positive for those who with the Volunteer had:

Teachers saying:	More Contact	Less Contact	Net Effect of Contact*
1) TV improves own teaching a great deal	- 9.4 (96)**	- 21.5 (107)	+ 12.1
2) Children very much prefer TV to non-TV classes	- 25.4 (83)	- 35.6 (101)	+ 10.2
3) Volunteer can give great help to teacher with TV	- 34.4 (93)	- 33.6 (104)	- 0.8

*Difference in percentage points between those with more and less contact. Plus sign indicates more contact retarded negative change.
**Number of teachers on which per cent is based.

Table 2:10: Change in Teacher Attitude and Contact with Utilization Volunteer during the First Semester Among Initially Less Favorable Teachers

Per cent of teachers who initially were less favorable who later changed to become more positive for those who with the Volunteer had:

Teachers saying:	More Contact	Less Contact	Net Effect of Contact*
1) TV improves own teaching a great deal	+ 90.9 (11)**	+ 56.7 (30)	+ 34.2
2) Children very much prefer TV to non-TV classes	+ 54.5 (22)	+ 17.1 (35)	+ 37.4
3) Volunteer can give great help to teacher with TV	+ 35.7 (14)	+ 3.4 (29)	+ 32.3

*Difference in percentage points between those with less and more contact. Plus sign indicates more contact promoted positive change.
**Number of teachers on which per cent is based.

Now, let us look at those teachers whose initial attitudes were less favorable toward ETV. The data appears in Table 2:10. Changes among these teachers could only occur in a positive direction. What was the relationship between contact with the Volunteer and change in attitude? In Table 2:10, we can see that for those teachers who were initially less favorable, a greater number with more contact changed their attitude in a positive direction than did those with less contact. In regard to television helping or reinforcing their teaching, 56.7 per cent of those who had less contact changed positively, but 90.9 per cent of those who had more contact changed positively. In regard to pupils preferring television over conventional classes, 17.1 per cent of those who had less contact changed positively, but 54.5 per cent of those who had more contact changed positively. In regard to the help the Volunteer can give the teacher, 3.4 per cent of those with less contact changed positively, but 35.7 per cent of those with more contact changed positively.

In these two tables the net effect of contact can be seen in the right hand column. For those who were more favorably inclined at the outset, a plus sign means that fewer teachers who had more contact changed negatively than did those who had less contact (Table 2:9). For those who were less favorably inclined at the outset, a plus sign means that more teachers who had more contact changed positively than did those who had less contact (Table 2:10). The figures after the signs represent the differences in percentage points between the per cents of changers with more and less contact. Out of the six instances, there are five in which contact had a positive effect. In the one remaining, no effect appeared.

We interpret this as indicating that contact with the Volunteer did have a positive effect on teacher attitudes. When teachers were more favorably disposed initially, contact retarded negative change. When teachers were less favorably disposed initially, contact promoted positive change.

How Did the Teacher View the Volunteer? We will now look at some results that tell us something about how the teacher viewed the utilization Volunteer during this first semester. First, we will look at the ways in which the teacher believed the Volunteer could have been better prepared or trained to help him. Then, we will examine whether the teacher felt the Volunteer was providing as much help as he was capable of doing. Finally, we will look at the teacher's perception of the role of the Volunteer and various Colombian persons and agencies in the project. Since we are interested in just what the teachers thought after actual experience with the project, we will deal only with results from the survey at the end of the semester.

The replies of the teachers on how the Volunteer could be better prepared or trained are shown in Table 2:11. By far the largest per cent (58.4) found the Volunteer inadequate because he could not supply teaching materials. This was followed by the complaints that the Volunteer did not know enough about the problems of teachers (42.1 per cent), did not speak adequate Spanish (25.7 per cent), and could have a better knowledge of teaching methods (16.8 per cent).

We have only a few observations on these results. Apparently, it is a common misperception among host country persons in all Peace Corps undertakings that the Volunteer should provide material things. However,

Table 2:11: Teacher Perceptions of Ways in which the Utilization Volunteer Could Be Better Prepared or Trained to Help Them

	Per Cent of Teachers Citing
Provide More Material for Instruction -- equipment, audio-visual aids, paper, books, etc.	58.4
Know More about the Problems of Teachers	42.1
Speak Better Spanish	25.7
Have a Better Knowledge of Teaching Methods	16.8

N* = 202

*Number of teachers on which per cents are based.

the very high per cent making this comment in this instance emphasizes the great importance for the ETV Project of thorough pre-television orientation of teachers on the Volunteer's role. This kind of undertaking is especially pertinent for this project, for although the problem may be ubiquitous for the Peace Corps it is seldom that the Corps has such a readily identifiable and available population as teachers to proselytize. (Although few teachers received much orientation for this first semester, an orientation program on all aspects of the project was developed in following semesters to reach almost all teachers before they begin using television.)

The results also indicate that language was a considerable problem during this first semester, with about one out of four teachers finding the Volunteer's Spanish inadequate. Here, we would point out that language is particularly critical for Volunteers who must deal with a large population on an extensive verbal level in a subject in which the host country person considers himself a trained practitioner. Unlike a community development Volunteer, the television utilization Volunteer neither has an opportunity to settle in among those with whom he will work nor can he be at all effective with minimal skills. High verbal skill is a requisite of consulting and advising. As to satisfaction with the Volunteer's expertise in teaching, we find it problematical whether the relatively few complaining of a lack of knowledge of teaching methods reflects satisfaction or simply a failure to think of the Volunteer as a source for such information. At the very least, the fact that about four out of 10 teachers complained that the Volunteer did not know enough about teacher problems suggests that the teachers were not entirely satisfied with the Volunteer's preparation in education. When we take this in conjunction with the feeling of many of the utilization Volunteers -- reported in a later section -- that they did not know enough about teaching to really help their teachers, we are inclined to think there was probably some dissatisfaction over the Volunteer's familiarity with education.

In regard to the teacher's view of the Volunteer's help, we asked two questions. In one, the teacher was asked how much help he thought the Volunteer was capable of providing. In the other, he was asked how much help he thought the Volunteer had actually given. Since the structure of the items and the alternatives for reply were identical, we were able to investigate whether there was any gap between expectation and delivery by comparing the proportion making the same reply -- "a great deal" -- to each. If the Volunteer failed to meet the teachers' expectations, we would expect the proportion for capability to exceed that for actual help. The results of this comparison can be seen in Table 2:12. There *is* a discrepancy. The figure for capability is 53.3 per cent, the figure for actual help 41.0 per cent, and the two differ significantly ($p. < .001$). Without considering the reasonableness of the teachers' expectations, this indicates that the teachers as a whole did not feel that the Volunteers delivered as much help as they were capable of doing.

Understandably, we were intrigued by this finding. The discrepancy would not necessarily follow from dissatisfaction alone, for it would be just as likely for estimates of capability and actual help to coincide, both being jointly influenced by dissatisfaction. Fortunately, our items on Volunteer inadequacies gave us an opportunity to seek empirically the source of this capability-actual help gap.

Our reasoning was this: If a particular criticism of the Volunteer played a part in this gap, then we would expect those estimating the Volunteer's capability as greater than the actual help he gave to make the criticism more frequently than those for whom there was no such discrepancy. Accordingly, we divided the sample into two groups, those who estimated Volunteer capability as greater than actual help, and those who did not, and compared them on their criticisms of Volunteer preparation and training. The results are shown in Table 2:13. Of the four kinds of inadequacies on which the teachers were queried, only one proved to be related significantly to perceiving a discrepancy between capability and actual help. This was the criticism that the Volunteer could help more if he provided material things. Among those perceiving a discrepancy, 73.7 per cent made this criticism, and among those not, 56.9 per cent ($p. < .05$). This suggests that the discrepancy is at least partly due to the teachers' mistaken belief that the Volunteer can be a source of material aid. There is no evidence that it was due to dissatisfaction over language ability, knowledge of teachers' problems, or knowledge of teaching methods. This would seem to be a further argument for teacher orientation on the Volunteer's role.

We are able to throw some light on how the teachers perceived the relative importance of the Peace Corps and Colombian persons and agencies by looking at their preferences for directing possible comments, complaints, or suggestions about the television. These preferences are shown in Table 2:14. As can be seen, the Peace Corps Volunteer was

Table 2:12: Volunteer Capability Versus Actual Help Given as Reported by Teachers

		Per Cent	X^2	p.
Saying "Great Help" in regard to:				
	Capability	53.3		
	Actual Help	41.0	14.40	$< .001$

N* = 195

*Number of teachers on which per cents are based.

Table 2:13: Dissatisfaction with Actual Volunteer Help and Specifying of Volunteer Inadequacies

	Teacher Says:			
Inadequacies	Volunteer Capability Greater than Actual Help Per Cent Citing	Volunteer Capability and Actual Help Given Equivalent Per Cent Citing	X^2	p.*
Provide More Material for Instruction -- equipment, audio-visual aids, paper, books, etc.	73.7	56.9	5.09	< .05
Know More about the Problems of Teachers	43.9	43.1	.01	n.s.
Speak Better Spanish	21.1	28.2	1.10	n.s.
Have a Better Knowledge of Teaching Methods	17.5	13.8	.48	n.s.
N** =	(57)	(174)		

*All p.'s are two-tailed tests.
**Number of teachers on which the per cents are based.

Table 2:14: Communicatory Targets to which Teachers Would Direct a Comment, Suggestion or Complaint about the ETV Program

	Per Cent Citing
Target:	
Peace Corps Volunteer	83.2
Instituto de Radio y Television	14.4
School (zone) Supervisor	10.4
School Director (principal)	10.4
Ministry of Education	3.0
Other Teachers	3.0
N*= 202	

*Number of teachers on which per cents are based.

the overwhelming choice, with 83.2 per cent, compared to the next most frequent choice of the Instituto de Radio y Television, with a mere 14.4 per cent. This reflects the importance of the utilization Volunteer to the teacher as a tie to the project. It also reflects a strong perception on the part of the teacher that the project is primarily a Peace Corps undertaking. This was gratifying, but also very disturbing, and we will briefly discuss its implications. We presume that one step in building an ETV system for Colombia is to create a base of support among the teachers related to Colombian institutions. As long as the teachers look upon the project as a Peace Corps task, then any support might well disappear once the Peace Corps ends its participation. This finding at this stage of the project illustrated the large challenge ahead in integrating the teachers with a Colombian ETV operation. Elsewhere, we show how the Peace Corps later achieved considerable success in this direction.

Television and Teacher Status: There was much speculation during the first semester that the teachers felt that using television conferred a rise in status. Since status depends on how others view a person, we investigated this by asking the teachers whether they thought certain specified others considered a teacher as "fortunate" or "unfortunate" to be using television. These specified others were "other teachers," "parents," and "persons in authority" (presumably school officials).

The results appear in Table 2:15. As can be seen, for each of the three categories of other persons a majority of the teachers -- ranging from 60.1 to 77.4 per cent -- said they thought a teacher using television would be viewed as "fortunate." For each category, most of the

Table 2:15: Teacher Status Perceptions

Teachers Saying They Were Thought Fortunate By:	Per Cent	N*
Other Teachers	60.1	198
Parents	66.8	190
Persons in Authority	77.4	193

*Number of teachers on which per cent is based.

Significance of Differences

			X^2	p.*
Other Teachers	versus	Parents	2.45	n.s.
Parents	versus	Persons in Authority	6.33	$< .02$
Other Teachers	versus	Persons in Authority	23.27	$< .001$

*two-tailed

remaining replies were "don't knows" (of each total, 30.7 per cent regarding other teachers, 32.5 per cent regarding parents, and 19.7 per cent regarding persons in authority). We interpret this as confirming the speculation that the teachers tended to think of television as conferring increased status.

We were also intrigued by the pattern of these status perceptions. Of our sample, 60.1 per cent said they thought a teacher with television would be viewed as "fortunate" by other teachers, 66.8 per cent said this in regard to parents, and 77.4 per cent said this in regard to officials. As also can be seen in Table 2:15, the difference between the proportions for other teachers and parents was not significant, but that between the proportions for parents and officials ($p. < .02$) and between those for other teachers and officials ($p. < .001$) were. We must conclude that there were real differences among the teachers in their perceptions of the status benefits of television depending on the kind of other people to whom they referred themselves, with the benefit seen as greatest in regard to officials or, conversely, least in regard to fellow teachers.

We suspected that the lesser perception of benefit among fellow teachers might be at least partly due to a conclusion that television could involve extra work and new teaching problems, of which teachers presumably would be primarily aware. We were able to test this by relating the opinions of the teachers as to whether television brought more work to their status perceptions. If this was the case, we would expect the perception of status benefit in regard to fellow teachers to be significantly less among those who had concluded television brought more work, and for no such relationship to occur in regard to parents or officials.

The results of this analysis are shown in Table 2:16. Although the proportion perceiving a status benefit is less in regard to all three categories among teachers who felt television involved more work, it is only significantly less in regard to other teachers. Of those who felt television brought more work 49.0 per cent said a teacher with television would be considered "fortunate" by other teachers but 63.3 per cent of those who did not think television involved more work said so, a difference of 14.3 percentage points ($p. < .05$). Thus we found some support for our suspicion.

Since a belief that television raises status is one of the many kinds of conceivably favorable dispositions toward the new instructional medium that can be drawn upon to gain willing cooperation, it is desirable that any such belief be as widely held as possible. The significant negative relationship between feeling that television involves more work and a perception of increased status among fellow teachers has a practical implication in this respect. Although television may indeed result in increased work for some teachers, this finding suggests that it would be wiser to characterize the new duties to the teachers as somewhat different in kind rather than greater in quantity. Telling a teacher that television means more work naturally inclines him toward feeling that he may not be so lucky to have it.

How Did Actual Experience Affect the Teacher's Preconceptions? Changes among the teachers in outlook over the semester reflect the effect on expectations and preconceptions of actual experience. Fortunately, we are able to measure any such changes in the most accurate way possible -- by examining changes over time in the replies of the same

Table 2:16: Status Perceptions Related to Belief that Television Involves Increased Work

	Per Cent Who Say a Teacher with Television Is Thought Fortunate Among Those Believing Television Involves:			
	More Work	Same or Less Work	X^2	p.*
By These Other Persons:				
Other Teachers	49.0 (49)**	63.3 (150)	3.165	< .05
Parents	58.7 (46)	69.4 (147)	1.807	n.s.
Persons in Authority	70.8 (48)	78.5 (144)	1.171	n.s.

*p.'s are one-tailed.
**Number of teachers on which per cents are based.

people to identical questions. This is because we surveyed the same group of teachers before and again at the end of this first semester. In this investigation of the effect of experience, we will look for possible changes first in attitude toward the project, then in perceptions of status conferred by television use, and finally in choices of "targets" for communications about the television project.

The data on attitudes are shown in Table 2:17. They cover the three major attitude items contained in both surveys. As can be seen, there were clear-cut statistically significant negative shifts for two, and no significant shift for the other:

-- There was a significant negative shift in regard to the help the Volunteer could provide. Before the semester, 78.8 per cent said "a great deal" of help. At the end, only 54.0 per cent said this. Of the total sample, 28.3 per cent shifted away from this positive response, and only 3.5 per cent toward it. The net per cent changing in a negative direction was 24.8 of the total sample (p. < .001).

-- There was a significant negative shift in regard to the teacher's opinion of pupils' preference for television over conventional classes. Before the semester, 76.0 per cent said the pupils would prefer television "much more." At the end, only 61.0 per cent said this. Of the total sample, 23.0 per cent shifted away from this positive response, and only 8.0 per cent toward it. The net per cent changing in a negative direction was 15 per cent of the total sample (p. < .001).

-- There was no significant shift in regard to the degree television could help or reinforce the teacher's own teaching. Before the semester, 83.2 per cent said "a great deal" and at the end a very similar 79.7

Table 2:17: Teacher Changes over the Semester

	Per Cent Changing in Response		Total Per Cent Giving More Favorable Response		Direction of Change if p. = or <.10	Total N*	X^2	p.**
	Negatively	Positively	Before	After				
Teacher Opinion on:								
Degree the Volunteer can help the teacher	28.3	3.5	78.8	54.0	Negative	198	38.11	< .001
Pupils' preference for TV classes as compared to conventional classes	23.0	8.0	76.0	61.0	Negative	200	14.52	< .001
Degree TV can help or reinforce own teaching	14.4	10.9	83.2	79.7		202	.96	n.s.
Teacher Status Perceptions: Belief that a teacher is thought fortunate by:								
Other teachers	22.2	7.0	75.3	60.1	Negative	198	15.52	< .001
Those in authority	13.7	9.0	82.1	77.4		190	1.83	n.s.
Parents	20.2	7.7	79.3	66.8	Negative	193	10.67	< .005

*Number of teachers on which the per cents are based.
**All p.'s are two-tailed tests.

per cent said the same thing, with negative and positive shifting just about balancing out. We must interpret these data as showing no change at all in the teachers' highly favorable view of television's instructional potential.

The data on perceptions of status conferred by television use appear also in Table 2:17. It will be recalled that we asked the teachers whether they thought three different groups considered them "fortunate" or "unfortunate" to be using television -- other teachers, persons in authority, and parents. As can be seen, there were clear-cut statistically significant negative shifts in regard to two of these hypothetical "others," and no significant shift in regard to the third:

-- There was a significant negative shift in regard to "other teachers." Before the semester, 75.3 per cent said other teachers would consider a teacher using television as "fortunate." At the end, only 60.1 per cent said the same. Of the total sample, 22.2 per cent shifted away from this positive response, and only 7.0 per cent toward it. The net per cent changing in a negative direction was 15.2 per cent of the total sample ($p. < .001$).

-- There was a significant negative shift in regard to "parents." Before the semester, 79.3 per cent said parents would consider a teacher using television as "fortunate." At the end, only 66.8 per cent said the same. Of the total sample, 20.2 per cent shifted away from this positive response, and only 7.7 per cent toward it. The net per cent changing in a negative direction was 12.5 per cent of the total sample ($p. < .005$).

-- There was no significant shift in regard to "persons in authority." Before the semester, 82.1 per cent said persons in authority would consider a teacher using television as "fortunate," and at the end a very similar 77.4 per cent said the same, with the slightly greater amount of negative shifting not being enough in excess of positive shifting to be more than might occur by chance.

These results are striking for a number of reasons:

-- They clearly reflect considerable disillusionment among the teachers. The two negative shifts in attitudes would alone demand such an interpretation, and the two in status perceptions merely reinforce it. For the six attitude and status items, there were four significant shifts, all in a negative direction.

-- Among the attitude items, the relatively large negative shift over the help the Volunteer could provide is especially noteworthy, since so many Volunteers in ETV -- at the time, more than half -- have been assigned to working with the teachers.

-- Equally noteworthy among the attitude items is lack of a significant negative shift over the teaching help television itself can provide. This is especially striking because of the context of negative shifts in which this occurs.

-- Among the status items, the lack of a significant negative shift regarding "persons in authority" is noteworthy. Like replies on television's help, this stands out by contrast.

-- Despite the several significant negative shifts, a majority for all three attitude and all three status items gave the positive replies at the end of the semester. For the three attitude items, 54.0 per cent said the Volunteer could provide "a great deal" of help, 61.0 per cent said they thought pupils preferred television "much more" over conventional classes, and 79.7 per cent said television could help their teaching "a great deal." For the three status items, the per cent saying a teacher using television was considered "fortunate" by other teachers was 60.1, by parents, 66.8, and by persons in authority, 77.4. Taken alone, this would give a largely favorable impression of the project -- although the considerable gulf between the high approval given television and that given the Volunteer would demand attention.

It is certainly understandable that some disappointment occurred. The inaugurating of the project encountered many difficulties which might have lead to a revising of high expectations. However, we find it noteworthy that the disappointment focused on the utilization Volunteer. We cannot hope to disentangle all the factors responsible for this, or for the general trend. However, certain ones strike us as being especially important. We know from our other results that Volunteers did not visit some teachers very often, and that lack of contact was associated with negative shifts. These results, then, emphasize the importance of contact. We know also that the teachers were disappointed in the Volunteers because they did not supply material goods. We think these results also again emphasize the importance of pre-television orientation for the teachers -- to clarify the Volunteer's role, as well as to warn and thereby "inoculate" the teachers against difficulties that might occur.

Given the negative pattern, we are very impressed by the lack of significant negative changes on the helpfulness of television, and, in status perception in regard to "persons in authority." The former shows a remarkable strength of belief in the instructional power of the new medium. The latter suggests that while the teachers may have felt television's impact in the school and neighborhood to have been less than expected, they continued to think of it as having marked official sanction.

We also investigated shifts in the teacher's choices of communicatory targets. The data appear in Table 2:18. As can be seen, there was only one shift that achieved the criterion of significance (p. = or < .05). That was in regard to the school supervisor. The teachers shifted away from choosing him as their preference for comments, complaints, or suggestions. One other shift approached significance. That was for the Volunteer. The teachers shifted toward choosing him. We find, then, that the first semester led to strong dependence on the Volunteer as the major link with the project, and an actual turning away from local Colombian persons. As we said before, this is understandable, and probably gratifying, but posed the challenge of devising a substitute for the Volunteer in the eyes of the teacher.

Summary and Discussion: By surveying the same group of teachers before and again at the end of the project's first semester, we were able to investigate the actual degree of contact that occurred between utilization Volunteers and teachers, the effect of teacher attitudes on Volunteer behavior, the effect of Volunteer contact on teacher attitudes, teacher perceptions of the Volunteer and the status conferred by using television in teaching, and changes in expectations and preconceptions as the result of actual experience with television. We found that:

Table 2:18: Teacher Changes over the Semester in Choice of Communicatory Targets

Communicatory Targets	Per Cent Changing		Total Per Cent Choosing		Direction Change if p. = or < .10 (two-tailed)	Total N*	X^2	p.**
	Shifting Away	Shifting Toward	Before	After ***				
Would direct comments about ETV to:								
Peace Corps Volunteer	8.1	14.6	77.3	83.8	toward	198	3.76	< .07
Instituto de Radio y Television	6.5	10.1	11.1	14.6		199	1.42	n.s.
School (zone) Supervisor	14.7	4.6	19.8	9.6	away from	197	10.53	< .01
School Director (principal)	7.1	5.1	12.1	10.1		198	.67	n.s.
Ministry of Education	2.0	1.5	3.5	3.0		199	.00	n.s.
Other Teachers	3.5	2.0	4.5	3.0		199	.36	n.s.

*Number of teachers on which the per cent is based.

**All p's are two-tailed tests.

***Per cents differ slightly from those in Table 2:14 because of loss of a few cases in matching for the two periods.

-- Volunteer contact with teachers varied considerably, with many teachers relatively left out; and school visits and personal contact were not equivalent, with many teachers having less contact than visits to their schools would imply.

-- Teacher attitudes toward the project influenced Volunteer contact, with less favorable teachers receiving less contact. We suspect that this was done unwittingly by the Volunteer.

In effect, the Volunteer informally and probably accidentally usurped an important administrative decision -- whether teachers less favorably disposed toward the project should receive more, less, or the same amount of attention as others. Moreover, the lack of equivalence between school visits and personal contact suggested that the use of the school as a unit for control was likely to be inaccurate as a measure, and inadequate for the Volunteer's own use as a criterion.

-- Contact with the Volunteer had a beneficial effect on teacher attitudes. Those having more contact with the Volunteer were a) more inclined to become more favorable toward the project, if negative at the outset, and b) less inclined to become less favorable toward the project, if positive at the outset, than were those teachers who had less contact with the Volunteer.

It seems fair to say, then, that the utilization program even in its first stage was capable of achieving one of the presumably necessary conditions for other accomplishments -- favorable teacher attitudes toward ETV.

-- The teacher is not uncritical of the Volunteer, a fourth saying the Volunteer could help more if he spoke better Spanish, and more than

40 per cent saying the Volunteer could help more if he knew more about teaching and its problems.

-- The way most frequently cited -- by about 58 per cent of the teachers -- in which the Volunteer could be better trained or prepared to help was by supplying materials to the teacher.

This suggests that without extensive orientation of the teachers as to the Volunteer's role, the teacher is apt to misconceive it, to the detriment of teacher-Volunteer relations.

-- The Volunteer was overwhelmingly cited as the person or agency to which the teacher would direct comments, suggestions, or complaints about the ETV program (about 83 per cent named the Volunteer, and the next most frequently named target was the Instituto de Radio y Television, named by about 14 per cent).

-- The sole shifts in naming of communicatory targets which occurred over the semester were a) in favor of the Volunteer as a target, and b) away from the supervisor of the school as a target. In fact, no "weaning" occurred; dependence on the Volunteer would appear to have actually increased.

-- In regard to a) some aspects of attitude toward ETV, and b) perceived status as a result of using TV, the shifts in responses of the teachers over the first semester were away from making the most positive response.

-- The teachers were not disabused of their initial attitude that TV would improve their own teaching, a key item reflecting the teachers' disposition toward TV as an instructional medium.

-- The frequencies of teachers making highly favorable responses at the beginning of the semester were quite high for all items, so that although the significant shifts which occurred were away from these responses, the proportion remaining highly favorable was still large at the end of the semester.

Part IV: The Interviews with Utilization Volunteers and Teachers

Because it had become clear to us that the role of the utilization Volunteer was not sharply defined, we decided to look closely at how it had evolved in practice. During the semester, of course, we spoke with one or more utilization Volunteers every day in the course of our work. In addition, we decided to conduct more formal interviews with the utilization Volunteers and with a sample of the teachers with whom they had been working at the end of the semester.

"Utilization" ordinarily would refer to the teacher-directed classroom activity complementing televised instruction. Every classroom teacher teaching with television is a "utilizer" because he makes use of television in his own teaching. Such conventional teaching is an important part of classroom instructional television, for learning from television depends on what the teacher does as well as on what is telecast. This is especially true for the primary grades which pupils enter with undeveloped learning skills and unfocused motivation.

In the Colombia project, the term also was used to designate the Volunteers who were assigned to visit schools and work with teachers on behalf of ETV. Ostensibly, it was the job of the utilization Volunteers primarily to teach the teachers to utilize effectively. These Volunteers were to act as educational consultants, giving in-service training to Colombian teachers. However, partly because educational television on a large scale is new to Colombia and partly because Colombia is a developing country with insufficient educational capability, the work of the utilization Volunteers has turned out to be much broader, involving proslytizing, persuasion, supervision of physical arrangments for television, and school reorganization, as well as instruction of teachers. It has been their job a) to gain acceptance from the teacher for the ETV project; b) to achieve satisfactory conditions in the school for viewing television; and c) to bring about classroom teaching before and after the telecasts (called "motivation" and"follow-up") that would be effective and integrated with television. In Colombia, this assignment is especially challenging, for classroom discipline, following schedules, adherence to a curriculum, willingness to use new methods, and commitment to teaching as a profession -- the social foundations for innovation in education -- are frequently noticeable only by their absence. In practice, the utilization Volunteer was assigned a group of schools with television, and left with the responsibility of setting up a workable method and schedule of consultation. What we are concerned with here, then, is how this program evolved in the early days of the program under only the broadest of guidelines and a minimum of supervision.

The Data-Gathering: For Volunteer data, we interviewed 19 of 23 utilization Volunteers working in Bogota, and 11 of 20 working in Cundinamarca. Each interview took about an hour, and a semi-structured schedule was used (see Appendix D). For teacher data, 19 fifth grade teachers in Bogota were interviewed. These interviews also took about an hour, and a schedule similar to that for the Volunteers was used (see Appendix D). The teachers were selected by random methods, each one representing the work of a different Volunteer to provide the broadest possible reflection of Volunteer activities. The sample size was severely limited by the amount of time, often three times as great as the interview itself, required to locate and reach the school, gain permission from the principal for the interview, and meet the nearly mandatory social obligation of conversing with other teachers. Only fifth grade teachers were used because this grade received three televised classes (Mathematics, Natural Science and Social Science), and thus should have both required and received maximum attention from Volunteers, while other grades received either one or two televised classes.[12]

Both Volunteer and teacher data were gathered in mid-May of 1964, shortly before the end of the first semester of ETV. They should reflect fairly the first semester's utilization program. Responses of Bogota and Cundinamarca Volunteers are combined except when they differed markedly.

Utilization from the Volunteer's Perspective

How often did the Volunteers see the teachers?

Eighteen, or 60 per cent, of the Volunteers said they visited each of their schools about once a week. Nine, or 30 per cent, said they visited their schools about twice a week. The remaining three reported visiting their schools less frequently than once a week. Each school, of course, may have had five or more teachers teaching with television.

Were some schools occasionally left out? And, if so, why?

Sixteen, or 53 per cent, of the Volunteers said that some of their schools got less attention than others. The most frequently cited reason was transportation difficulties. The more conveniently located a school, the more attention it usually got. Some Volunteers said they gave less attention to schools with difficult problems, others that they gave less attention to schools with few problems. Differential treatment occurred more frequently in Cundinamarca, where transportation difficulties are greater.

How much time did the Volunteer spend at the school with the individual teacher?

Half the Volunteers said they usually stayed at each school for from one to two televised lessons, but not all morning. The rest either stayed all morning, or all day, or radically varied their schedule from day to day. Because of transportation difficulties, Cundinamarca Volunteers tended to spend more time at a school once they were there.

Ten, or 33 per cent, of the Volunteers cited one hour, including the time spent observing the televised lessons and complementary classroom activity (about 50 minutes altogether), as the longest time they had spent with a single teacher. Nine recalled spending as long as two hours with a single teacher, and the remainder said they had spent even longer periods.

What took place when the Volunteer visited a school?

Two quite opposite strategies were outlined by Volunteers. Some usually went directly to the room of the teacher whose class was scheduled to receive a televised lesson. There, the Volunteer observed the "motivation", the telecast, and the "follow-up." Sometimes, but not always, the Volunteer discussed the program with the teacher, and less frequently the Volunteer suggested different techniques which the teacher might use in "motivation" and "follow-up." Other Volunteers usually called first on the school's principal, to take advantage of this person's authority in dealing with individual teachers. After this visit, these Volunteers followed the same procedure as those who went directly to the individual teacher. Thus, some Volunteers chose to circumvent existing authority; others tried to make use of it.

Did the teachers ever have questions for the Volunteer about using ETV in their teaching?

If the teacher viewed the Volunteer as a useful consultant, it might be expected that he would have questions for the Volunteer about using ETV. Only four Volunteers reported such inquiries as occuring frequently. Eight said that *sometimes* the teachers had questions. The remaining 18, or 60 per cent, said that inquiries *hardly ever, or never* occurred, with more than half of this group saying *never*. In interpreting this, it must be remembered that each Volunteer spoke for his relations with a large number of teachers (about 40 to 50), so that it is clear that most teachers never initiated discussions about teaching with television. Of the teacher-initiated discussions, only half were said to concern utilization, or even the programs. The rest were requests for educational materials or special equipment, such as movie projectors.

Did the Volunteer perceive much difficulty in making his teachers understand?

Seven, or 23 per cent, reported some difficulty in making their teachers understand. *All* attributed it to a lack of educational knowledge on the part of the teacher. As one Volunteer phrased it, "They may understand the words, but they do not understand the meaning." The principal problem was seen as the failure of the teacher to recognize the importance of building classroom activity around the telecasts.

Did the Volunteers feel at all inadequate or incapable of helping their teachers?

Sixteen, or 53 per cent, reported that they felt inadequate, and *all* of this group cited a lack of training or experience in education as the source of their frustration. Some representative comments:

"Yes, because I am not a primary teacher. In fact, I have undertaken some steps to transfer because of lack of training. Even in New Mexico (practice teaching during training), I was with a sixth grade. I have trouble knowing what first graders think." (The Volunteer later resigned from the Peace Corps.)

"Yes, a lack of educational theory and too little training in teaching methods."

"Yes, no background in education. I could only teach the basic orientation to ETV, but was unable to go farther. I tried to overcome this with enthusiasm, but this did not 'transfer' due to my feelings of inadequacy." (This Volunteer later transferred from utilization to another ETV assignment.)

"Yes, The teachers want information on modern education. I've never even read an education journal."

An additional five, or 17 per cent, reported some feelings of inadequacy, citing a lack of authority to give explicit instructions rather than merely make suggestions. These people felt lack of public, active support from officials above the school level hampered their efforts, since many teachers did not voluntarily follow the Volunteer's advice.

What did the Volunteers think their work meant for the teacher? Did they think it made the teacher's job easier, or more difficult?

As a group, the Volunteers were unsure. Seventeen thought they had made the teacher's job more difficult through their demands for more class preparation; thirteen thought they had made up for any added work by providing a pattern of organization, and a medium which occupies part of the class time.

How did the teachers react to the special teacher training programs?

All Volunteers agreed that almost no teachers ever watched the teacher training programs, which were telecast about once a week after the morning's last class. Most Volunteers had attempted to get their teachers to watch, but had given up because of: a) too great resistance on the part of the teachers; b) fear of prejudicing their effectiveness in other areas; and c) their lack of confidence in the shows. Most Volunteers supported the idea of special shows for teachers, but considered the problem of encouraging teachers to watch without some reward -- such as credit for professional advancement -- as almost insurmountable. Most felt the shows were too general in content, covering topics like child psychology. The only programs cited by Volunteers as receiving any favorable response from teachers who did watch were those dealing with the "new math," a definitely pragmatic topic. The shows were given a more practical emphasis for the second semester, but it was not until almost a year later that a potentially successful formula was found.[13]

Did the utilization experience differ from what the Volunteers expected on the basis of their training?

Seventeen, or 57 per cent, reported that utilization differed from what they had expected. These Volunteers most frequently cited an unexpected lack of interest, motivation and enthusiasm on the part of teachers. Some cited the difficulty of gaining support for their work from officials; and some cited the unstructured nature of utilization, and its frequent, frustrating evolution into social interaction rather than educational progress. Some Volunteer comments:

"I thought ETV would be an all day job, with more talking to teachers. I thought they would be more interested and would use some new ideas, if suggested. They don't. They don't even try."

"I expected more cooperation on all levels, and better prepared teachers, and more preparation for ETV before the program began."

"There is much less coordination among the Volunteers -- intercommunication -- than I expected. There also seems to be a great lack of leadership and direction among the group. This could be remedied soon with a Volunteer leader, but I think it has hampered us so far." (Volunteer leaders were appointed a few weeks later. Since this time, a very effective system of Volunteer administration of utilization work has been set up.[14])

Of those not reporting that utilization differed from expectations, most said they had no concept at all of what it would be like. As one said:

"I didn't have a concrete idea as to what utilization would be. I realized it would evolve in accord with our personalities. At first, it was kind of a nebulous thing anyway."

Did the Volunteers think of themselves as successful?

Twenty-two, or 73 per cent, said that they thought their efforts had benefited their teachers. Those whose replies indicated they had noted some improvement in some of their teachers cited trying new methods; better organization of classes; teacher punctuality; increased teacher presence at the school and in the classroom; improved utilization of television; and increased teacher confidence and pride in profession.

Utilization from the Teacher's Perspective

In regard to the interchange between Volunteer and teacher, and the Volunteer's activities at the schools, the teachers confirmed the picture given by the Volunteers. However, many of the teachers reported that they had had no part in this interchange. Of the 19 teachers interviewed, seven, or 37 per cent, indicated that they had received no help from the Volunteer, for the simple reason that the Volunteer had not visited them. The replies of some of these ignored teachers to a variety of questions:

"She visits the school more or less twice a week, but she almost never visits the classes."

"She has never visited my class."

"We only spoke with her in a meeting in March."

"She has not visited me."

"No, she has not come."

"Only once has he visited my class, when the 'evaluation' (the research tests described in Part II) were given for Natural Science. The day of the evaluation he brought and gave the exams to the children and gave explanations about the test."

"In fact, I talked to her only once to show her a nice notebook done by a girl, so she came into my class to congratulate the girl."

"We never talk."

(Can the visits of the Volunteer help in your utilization of the television programs?): "Yes, because they bring the guides."

Of the 12 teachers who had been in frequent contact with a Volunteer, eight, or three fourths, said that the Volunteer had helped them considerably. Some comments:

"Yes, because all the doubts and problems I have I ask the Volunteer about, and she tells me what I am supposed to do."

"She teaches me the proper way to give the class and to use the material."

"Yes, because she has given us instructions on the way we should direct the children before, during and after the tele-class, so they will understand everything."

"Yes, because with his model TV class we learned to coordinate the ETV class and our teaching."

"Yes, as a stimulus to solve problems."

The other four frequently visited teachers said they had received no help through the Volunteer.

As to the teacher training programs, only five of the 19 teachers said they had watched even one of the weekly shows. Some comments:

"I have not seen them. I live far away. Probably they must be good. I don't know how they can help."

"I have not seen them. I live very far away. I don't know, but I think they might help. I don't know."

As the references to transportation difficulties would suggest, scheduling of the programs at a time requiring the teachers to remain after school to watch was frequently cited as a major bar to seeing them. Yet, there was little in the comments of the majority of teachers to indicate that they would watch under more perfect conditions, for few of them could conceive of any way in which such presentations could help them. Of those who had watched one or more programs, those dealing with the "new math" and the preparation and use of teaching materials such as audio-visuals were the only ones cited as possibly useful -- although the latter drew several complaints as involving material requiring expenditures for which neither teacher nor school had the money.

One subject televised for pupils drew extensive criticism, and that was Social Science. Eight of the 19 teachers voluntarily mentioned Social Science in response to the general question, "What problems have you had in your utilization of the television programs?" All cited coverage of too many subjects in too short a time as the principal difficulty.[15]

Volunteer Suggestions for Improving the Utilization Program

Suggestions varied from more rigorous selection of Volunteers to better support from the Colombian government. As would be expected, most dealt with ways to counter the difficulties which actually had been encountered during the first semester. The principal problems and solutions which we feel deserve attention were:

1) *The problem of Volunteer authority and role*. Many Volunteers felt that their effectiveness had been severly hampered by having to make their own contacts with teachers and establish their consultant role through whatever devices they could conjure. Even allowing for the speed with which the project was set up, many felt that the supervisors -- officials responsible for all schools in a particular zone -- could have been more fully involved. An advocated procedure: the supervisor should introduce the Volunteer to the school directors and teachers and make clear her support for the ETV program, thereby confirming the consultant role of the Volunteer and lending the Volunteer the prestige and authority of the supervisor.

2) *The problem of teacher indifference*. Many Volunteers advocated programs and "short courses" to introduce the teacher to the broad requirements and goals of the ETV program.

3) The problem of confusion over assignments. Many Volunteers suggested a firm decision among themselves and with Colombian officials as to the assignments of Volunteers to various zones, to permit the formation of close working relationships with the supervisors, each of whom is responsible for schools in specific areas.

4) The problem of Volunteer isolation. Despite group cohesiveness and frequent contact as a result of unusual geographical proximity among utilization Volunteers, many Volunteers felt "left out" of the project as a whole. This was the result of two conditions: a) a lack of information as to the concrete plans of the project for the future; and b) a lack of information on production and programming activities.

5) The problem of mal-distribution of resources. Many Volunteers suggested more careful surveys of installation sites, to insure the presence of adequate viewing conditions, and most important, a steady source of electric power.

6) The problem of counterparts. The failure of the Colombian government to provide counterparts for the utilization Volunteers was cited by several Volunteers. The lack of the counterparts was seen as making all jobs more difficult, but the greatest consequent burden would appear to be the lack of government enthusiasm for the project which their absence signified.

Summary and Discussion

The utilization Volunteers said they visited assigned schools once a week on the average. Some said they visited more frequently, some less. A majority of the Volunteers gave less attention to certain of their schools than to others, most often because of transportation difficulties, but occasionally for the inconsistent reasons that the school either did not need help, or seemed unlikely to benefit from it. The time spent at each school ranged from one hour to all day; invariably, an observation of a televised class was part of the visit. Some Volunteers preferred to contact their teachers directly, and others chose to work through the principal's existing authority. In either case, the behavior with the teacher was the same: observation of the "motivation," televised lesson, and the "follow-up," occasionally followed by comments or suggestions. Teachers seldom asked the Volunteer questions about classroom use of television, one of the ways in which they might show interest and trust in the pedagogical expertise of the Volunteer. In regard to teacher understanding, those Volunteers reporting difficulty attributed it to lack of educational knowledge on the part of the teachers. A majority of the Volunteers expressed feelings of inadequacy in helping their teachers because of a lack of training or experience in education. The weekly teacher training programs were not watched, and no Volunteer found a successful solution. A majority of the Volunteers found utilization different than expected, most frequently citing the lack of teacher interest and enthusiasm. A majority of the Volunteers felt their efforts had had some positive results on teachers: willingness to try new methods, better class organization, punctuality and decreased absenteeism, improved utilization, and pride in profession. Volunteer suggestions for redesigning the utilization program dealt with problems of Volunteer authority and role, teacher indifference, confused and changing assignments, Volunteer isolation from the project, maldistribution of resources, and the lack of counterparts.

In general, the teachers confirmed the Volunteers' reports. However, more than a third of the interviewed teachers had been totally left out of utilization, with "the volunteer never comes" as the typical reply to all questions. Of those in regular contact with a Volunteer, three-fourths said they had been helped. Few teachers reported watching any of the weekly programs for teachers, and many volunteered complaints about television for pupils in one subject -- Social Science -- saying that too much material was covered in too short a time for effective utilization.

Part V: More on the Volunteer Experience During the First Semester -- Challenges Faced, Problems Feared, and "Critical" Incidents Experienced

In addition to interviewing the utilization Volunteers about their work in the schools, we obtained information from Volunteers in several other ways during the first semester. One was a questionnaire covering a broad range of Peace Corps-related topics completed in private by almost all of the ETV Volunteers a few weeks after they had arrived in Colombia and had had some initial work experiences. Another was an interview of the utilization Volunteers for "critical incidents" or problems they had encountered in working with Colombians. These are given detailed attention elsewhere.[16] Here, we will present only a summary of the Volunteers' replies to two parts of the questionnaire, and the broad substance of the critical incidents. These data illustrate some of the major problems of the first semester.

The two parts of the questionnaire concern what the Volunteers considered their greatest single challenge up to that time, and which problems they thought at that time were likely to be "serious" ones in the future. The item on challenges was open-ended (see Appendix E). When the anecdotes were coded, it turned out that 31 per cent of the Volunteers, or almost one out of three, cited something involving lack of cooperation, either from a teacher or from an official. Of all the distinguishable kinds of responses, this was the most frequent. The only others which more than 10 per cent of the Volunteers cited involved their inability to speak adequate Spanish (15 per cent), personal adjustment -- worry, dissatisfaction, and anxiety (14 per cent), and dislike of some particular aspect of Colombian life (11 per cent).

The problems were covered in a checklist (see Appendix E). The alternatives, and the per cent checking each as a serious problem, are shown in Table 2:19. As can be seen, more than one-third of the Volunteers, 38 per cent, checked "support from Colombian officials" as likely to be a serious problem for them in the future. The only other problems checked as likely to be serious by more than 10 per cent of the Volunteers were "ability to communicate in Spanish" (21.5 per cent), and "problem Volunteers" (17.8 per cent). In sum, after a few weeks in the ETV Project, both the challenges the Volunteers had faced and their worries about the future centered on lack of cooperation from Colombians, with language ability a major but secondary concern.

The "critical incidents" were collected at the end of the first semester in interviews with 30 of the 43 Volunteers then assigned to utilization (for the interview schedule, see Appendix E).[17] There were 93 incidents involving the Volunteer's ETV work. These were coded as to the state of utilization Volunteer work which they concerned -- gaining acceptance and support from the teacher or other persons for the ETV Project; obtaining adequate physical circumstances in the school for television viewing; and, the ultimate and final concern of the Volunteers, changing teacher behavior in regard to teaching methods and organizing the school around ETV. The distribution of the incidents by these categories is shown in Table 2:20. As can be seen, gaining acceptance and support or problems of cooperation, were dominant. About 41 per cent of the incidents fell in this category.

The same problem, then, was reflected both in the replies of all Volunteers shortly after they began work about challenges and problems,

Table 2:19: Citing of Various Possible Problems by Volunteers as Likely to Pose a "Serious Problem."

Problem:	Per cent Saying "Serious Problem"
Support from Colombian Officials	38.0
Ability to Communicate in Spanish	21.5
"Problem" Volunteers	17.8
Living Allowances	8.9
Visits, Attention from Staff	8.9
Health	3.8
Dangers Other Than Health	3.8
Technical Skills for Job	2.5
Ability to See Results	0
Friendliness of Local People	0

Table 2:20: Distribution of Critical Incidents by "Stage" of Utilization

	Stage of Utilization		
	Gaining of Acceptance and Support ("Cooperation")	Obtaining Adequate Physical Circumstances for TV Viewing	Changing Teacher Behavior -- Methods and School Organization
Per cent of Critical Incidents*	40.8	23.6	35.4

*Number of Critical Incidents = 93

and in the critical incidents collected from the utilization Volunteers at the end of the semester. The problem was the difficulty of obtaining cooperation from Colombians. This is how the Volunteers saw it. It is impossible to measure how accurately it reflects reality. However, it corresponds to what we observed to be the project's major difficulty at this time. It is also impossible to say just how much of this could have been avoided. Part of the source of the problem was certainly the newness of the ETV Project to the Colombians. However, it also seems likely that part of it lay in the lack of involvement, commitment and acceptance by the persons it concerned directly -- teachers, intermediate and lower school officials, and others -- prior to the need for their participation in it. If so, the problem was a penalty of the way in which the project was inaugurated -- the price of rapid practical results. There was also the failure of the Colombian government to provide a counterpart for each of the utilization Volunteers. Although this could not have directly affected the replies about challenges and the critical incidents reported, it probably did influence the replies about future problems, for here was a dramatic example of what Volunteers had experienced individually in smaller ways. As the project expanded, the problem of cooperation became less critical because for each new area the groundwork of obtaining local commitment and involvement was laid with increasing care.[18] During the first semester, however, the problem of obtaining cooperation, always important, was especially severe.

Part VI: A Follow-Up to the Field Experiment

At the beginning of the ETV Project's third semester (February-June, 1965), we decided to attempt to take advantage of the data collected in the field experiment of the first semester by using them as a basis for new research. We decided to test again, using earlier results as a standard by which to assess progress during the intervening year.[19]

The Design: The classes of certain teachers tested during the field experiment in 1964 were tested again a year later, in 1965. The tests were the same; the teachers were the same; the televised instruction was the same -- a re-run of the same video tapes. The testing took place at the same point in the televised instruction as before -- after the same number of lessons had been shown. Only the pupils were different. Presumably, the new scores, when compared with the old, would reflect teacher progress over the year in using ETV. That is, the difference in pupil scores would reflect the effects of a year of experience on the teacher's ability to utilize the televised instruction. Because it was important that the 1964 scores represent the teachers when they had had as little experience as possible, it was necessary to use scores from the pre-test for the field experiment rather than from the final results.

We re-tested classes in one grade and subject, Natural Science V. Of all the 10 courses televised in 1964, this was the only possible choice. It was one of the few courses for which the televised programs had not been revised in some way, and it was the only course for which we had a sufficiently large number of tests from the 1964 Bogota pre-test to provide reasonable hope of finding an adequate number of the same teachers in the same school teaching the same grade. In fact, out of 44 Bogota teachers whose classes had been tested in 1964, only 10 were found who were again teaching Natural Science V.

We began with two hypotheses. If the teachers had gained skill in the utilization of televised instruction as the result of a year's experience with ETV, we would expect the 1965 scores to be superior to the 1964 scores. Moreover, since some of the pupils in these classes in 1965 might not have had prior experience with ETV, it also seemed possible to look for effects (of pupil experience with the medium) on their achievement. If prior experience had improved pupil skill in learning from ETV, we would expect the scores in 1965 of those who had not had prior experience to be inferior to those who had had such experience.

The Results: The scores for 1964 and for 1965 for the 10 classes are shown in Table 2:21. In the column at the right, the difference between the two is shown, with a plus (+) or minus (-) sign indicating whether the 1965 score was higher or lower. Since the number of pupils in each class who had had prior ETV experience varied, those without such experience have been omitted from the 1965 results to give each class equal footing. At the bottom of the table, the overall mean, treating each class mean as a single score, is shown for 1964 and 1965, and the difference appears at the bottom of the column at the right. As can be seen, the 1965 scores were higher in seven of the 10 instances; on the basis of a sign test, this does not quite reach statistical significance (P. < .09). The overall mean for 1965 also is slightly higher than for 1964 (+ .75); however, this difference does not reach statistical significance (P. < .25).

As to the effect of experience with ETV on pupil achievement, there were only 25 pupils without at least a semester's prior experience with television in the 10 classes tested in 1965. The relation of their scores to the median of each of their classes is shown in Table 2:22. If prior experience had had no effect, we would expect an equal number to fall above and below the median, which is the middle score for each class. As can be seen, of the 25 scores, 21 fell either above or below the median, and of these 21, 14 fell below. Thus, of the scores which fell above or below the mid-point for each class, two out of three fell below. However, this difference does not reach statistical significance (P. < .10, one-tailed test, with correction for continuity).

Summary and Discussion: Ten classes of teachers using ETV were tested in 1964 and in 1965, with the subject (Natural Science V); the tests, the teachers and the televised instruction were the same. The purpose was to obtain information on the effect of experience with ETV on the ability of the teachers to utilize ETV, and on the ability of the pupils to learn from it. The 1965 scores of seven out of the 10 classes were higher, and the overall mean for the 10 classes for 1965 was higher. This is in the direction which would be expected if the teachers' ability to utilize had improved over the year, but the differences did not reach statistical significance. Two out of three of the scores of pupils who had not had prior experience with ETV were below the median for their class. This also is in the direction which would be expected if prior experience increased ability to learn from ETV. Again, however, the difference did not reach statistical significance.

Table 2:21: Learning from Television: Effect of Classroom Teacher's Experience with ETV on Pupil's Achievement

Teacher's Class*	Class Mean When ETV Was New to the Teacher (1964)	Class Mean After a Year of Teacher Experience with ETV (1965)	Gain or Loss in Class Mean
1	17.7	23.1	+ 5.4
2	19.2	19.7	+ .5
3	25.0	21.3	- 3.7
4	22.3	24.9	+ 2.6
5	21.0	21.6	+ .6
6	20.8	21.1	+ .3
7	20.8	21.2	+ .4
8	23.0	19.2	- 3.8
9	24.5	24.1	- .4
10	18.5	24.1	+ 5.6
$\overline{X}$ =	21.28	22.03	+ .75

N = 10 classes

sign test p. < .09 (one-tail test)
difference p. < .25 (one-tail test)

*Each class was from a different Bogota school

Table 2:22: Achievement of Pupils Without Prior ETV Experience

Number of Pupils whose score was:

Above the Median for their Class	Below the Median for their Class	N*
7	14	21
	p. < .10	

---

*Number of pupils whose score was above or below the median for their class.

It is difficult to say why the differences were not more pronounced. The 1965 tests were carefully monitored by Volunteers. Probably, the 1964 tests were less carefully monitored because of the many other tests taking place simultaneously, and possibly the 1964 scores are artificially high for a few classes because the teachers at that time helped the pupils with some of the items. Probably, too, the difficulties in inaugurating the program in Bogota meant that the teachers were both less willing and received less good advice about utilizing than might have been the case under other circumstances. However, the similarity of the distributions for 1964 and 1965, and their small range around the mean for each of these periods, suggests that the tests deserve to be taken seriously.

There was no relationship between the rank order of the class scores for the two periods (rho = .09, n.s.). This suggests that factors other than some innate characteristics of teacher, school, or background of pupils affected the results for 1965. Quite possibly, for reasons unknown, some of the teachers did improve in their utilizing, and others did not, or even became less effective.

Probably, the best interpretation of these results is simply that the improvement of teaching is an extremely difficult task. The core of instruction may be revolutionized by television quickly, but changing the ways of individual teachers is a much more arduous job.

Part VII: A Follow-Up on the Determinants of Volunteer-Teacher Contact

At the first opportunity, we followed up our finding that Volunteers had given a disproportionate amount of attention to teachers initially more favorably disposed toward them and the project with a study intended to elicit more information on the bases of the Volunteers' choices. It will be recalled that the early finding was based on the comparison of initial attitudes of teachers who later had relatively high or low contact with Volunteers. For the follow-up, we investigated Volunteer perceptions of teachers with whom they previously had had a relatively high or low degree of contact.

For this new study, we had to be able to identify by name a fairly large number of teachers whom we could distinguish as to previous contact with a Volunteer, and we had to be able to do so promptly after the period of contact so that Volunteer perceptions would be meaningful and fresh. Moreover, these teachers had to come from an area where ETV had just been introduced, so that the contact would represent the normal pattern arising as Volunteers adjusted their schedules, and the area itself had to be one without marked variations in ease of transportation, so that possible relationships between Volunteer perceptions and contact would not be obscured by their bowing to the force of geography. These conditions were first met in mid-1965, when we had available the reports of teachers in Colombia's second city, Medellin, a compact city of 773,000 with excellent transportation, on contact with Volunteers in the teacher survey made at the end of the year's first semester, which had been Medellin's first with school television.

The Design: For this study, only teachers reporting an extreme of contact -- high or low -- were used. High contact teachers were designated as those reporting at least one conversation a week on the average during the semester with the Volunteer. Low contact teachers were designated as those reporting conversing "rarely" (the next category, representing more frequent contact, was "less than once every two weeks"). For each of the six Volunteers working full time in schools in Medellin, up to six teachers -- depending on the number available for the Volunteer -- were drawn randomly from each of these two groups, and the Volunteer was queried closely for his views on them. Each Volunteer, of course, was asked only about teachers for whom he ostensibly was exclusively responsible. The interview procedure was the same for all Volunteers in respect to all teachers, and the Volunteer was required to use the same set of categories in evaluating the teacher on a number of clearly specified dimensions. The Volunteers were not told the purpose of the study, and were not aware during the interview that the teachers could be systematically distinguished as to their previous contact with the Volunteer. In addition to their perceptions of the teachers, the Volunteers also were queried about the teachers' schools.

The Procedure: Since we could not know beforehand which schools a Volunteer was responsible for, it was necessary to sample concurrently with the interview. The name and school of each teacher, along with a code designating contact, were typed on file cards. At the beginning of the interview, the names of all schools were read to the Volunteer, and "his" schools put aside. These cards were then thoroughly shuffled, and he was asked about the teachers as they were drawn off the top, with up to six being drawn in each category.[20]

The interviews were structured (see Appendix F). The Volunteer was told that we were making a more intensive study of a small sample of teachers who had responded to our recent survey, and that as part of this we wanted his opinion of the teacher. He was then asked to rate each teacher on seven dimensions -- utilization skill, teaching ability, ability to grasp new ideas, attitude toward the Volunteer, improvement since the Volunteer began work, attitude toward the Peace Corps, and ease of communicating with the teacher. He next was asked to rate the teacher's school, by coincidence also on seven dimensions -- barrio (neighborhood) living conditions, TV viewing conditions, physical plant, director (principal), ease of travel to the school, TV reception, and the other teachers. In regard to both the teacher and school, he was required to use the same five position scale for every dimension -- whether, when compared with others in his utilization experience, they were "much worse," "somewhat worse," "about the same," "somewhat better," or "much better." In regard to each teacher and school, the Volunteer was asked about each dimension as a separate question, and the scale choices repeated as necessary so that he could choose among them. The responses were recorded by the interviewer. In adddition, to encourage the making of meaningful distinctions in his ratings, the Volunteer was also asked to amplify his ratings with whatever comments he felt would give us a better picture of the teacher.

The Scale and Dimensions: Although it could perhaps do so only crudely, the five position scale, tied to the Volunteer's experience, was intended to place all the ratings for any one Volunteer on the same standard -- his own -- in order to permit us to view the ratings as reflecting relative ranking within the frame of reference usually employed by the Volunteer. The dimensions were chosen to cover the major separately discriminable characteristics of teachers and schools relevant to the Volunteer's work. They consisted of the characteristics to which we found Volunteers frequently referred in making evaluations. They were selected on the basis of a review of several hundred "critical incidents" recorded by Volunteers in problem diaries during the just completed semester, although they were the same as we would have picked on an "ad hoc" basis.

The Analysis: Scores running from 1 to 5 were assigned to the evaluations, with the higher score representing a more favorable evaluation ("much worse" = 1; "somewhat worse" = 2; and so on, up to "much better" = 5). Altogether, ratings were obtained on 52 teachers -- 29 high contact and 23 low contact teachers -- from the six Volunteers in the city. For three other low contact teachers sampled, ratings could not be obtained because the Volunteer in question had never heard of the particular teacher before. For each Volunteer, we calculated the average of his evaluation on each of the seven teacher and seven school dimensions for the high and for the low contact teachers whom he had rated. For each Volunteer, then, this led to two scores on each dimension -- one for high and one for low contact teachers. The number of teachers on which each of these scores was based for each Volunteer is shown in Table 2:23. As can be seen, in 10 of the 12 instances (six Volunteers x two categories of teachers = 12) the score was based on the ratings of at least four teachers; the two remaining

Table 2:23: Number of Teachers Rated by Each Volunteer

		Teachers Receiving:	
		More Contact	Less Contact
Volunteer:	(a)*	4	4
	(b)	5	3
	(c)	4	6
	(d)	5	4
	(e)	6	5
	(f)	5	1
Total Teachers Rated:		29	23

*Each letter stands for a Volunteer.

involved three teachers and one teacher. For each dimension, the analysis is based on six pairs of scores, each pair consisting of a score for high and low contact teachers, and with each Volunteer providing one pair. Thus, although a total of 52 teachers were rated, the N representing the number of scores analyzed is six, for the number of Volunteers.

An alternative procedure would have been to treat each rating for each teacher as an independent score, resulting in an N of 52. We felt this would be an inflation of the number of independent measures, since it seemed likely that the ratings by any one Volunteer would be correlated. Moreover, with the number of teachers rated by each Volunteer varying, this would have given slightly disproportionate weight to the ratings of certain Volunteers. We chose instead to derive only one score from each Volunteer for each category of teachers on each dimension, a procedure which, while markedly reducing the N, also had the advantage of permitting us to treat each pair of scores for each Volunteer as correlated, since they came from the same rater.

The results, which appear in Table 2:24, consist of the averages on each dimension of the six scores derived for the Volunteers. For example, the score of 3.661 for high contact teachers in regard to "utilization skill" is the average of six such scores, one from each Volunteer, each of which in turn is the average of a Volunteer's ratings.

The ratings of the teacher's school were treated identically to those of the teacher, with there being one set for each teacher. Since there were often several teachers from one school, only 27 schools actually are involved in these ratings. However, since we wished to

Table 2:24: Volunteer Perceptions of High and Low Contact Teachers

Volunteer's Ratings	Contact with Volunteer High Mean Rating	Contact with Volunteer Low Mean Rating	Difference (High - Low)	t.	p.
Of Teacher:					
Utilization skill	3.661	3.267	.394	1.941	< .06
Teaching ability	3.686	3.217	.469	1.764	< .08
Ability to grasp new ideas	3.744	3.336	.408	1.463	< .12
Attitude toward the Volunteer	3.961	3.739	.222	.832	n.s.
Improvement since Volunteer began	3.472	3.622	-.150	.703	n.s.
Attitude toward the Peace Corps	3.969	3.822	.147	.512	n.s.
Ease of communicating with	3.739	3.572	.167	.407	n.s.
Of Teacher's School:					
Barrio (neighborhood)	3.394	2.672	.722	4.401	< .01
TV viewing conditions	2.764	3.867	-1.103	3.823	< .02
Physical plant	3.253	4.211	-.958	2.030	< .10
Director	4.222	4.772	-.550	1.920	n.s.
Ease of travel to the school	3.778	3.478	.300	1.200	n.s.
TV reception	3.267	3.822	-.555	.978	n.s.
Other teachers	3.944	3.872	.072	.189	n.s.

represent the Volunteers' perceptions of the schools for these teachers, and because in several instances there were both high and low contact teachers from the same school, in deriving the scores for each Volunteer we counted a school rating for each of his teachers. Given our interests, and the fact that the teachers represented a probability sample of their respective categories, this seemed called for, although it meant that with the school rating naturally being the same for all teachers from the same school this rating was weighted depending on the proportion from the same school in one of the categories for each Volunteer.

Since we could entertain a hypothesis in regard to the teacher ratings -- that high contact teachers would receive higher ratings because contact was based on the Volunteer's perception of favorable teacher dispositions -- we applied a one-tailed test in assessing the significance of differences. Since we had no such hypothesis in regard to school characteristics, we applied a two-tailed test for the school ratings.

Teacher Results: If the Volunteers tended to prefer working with teachers whom they judged to have favorable attributes and attitudes relevant to ETV, we would expect the high contact teachers to receive higher ratings than the low contact teachers. As can be seen in Table 2:24, this occurred on six of the seven dimensions.

The sole exception is the teacher's improvement since the Volunteer began work. The difference, favoring the low contact teacher, is small and non-significant.

Of the remaining six, two of the differences favoring the high contact teachers approach significance -- utilization skill ($p < .06$), and teaching ability (p. < .08). Another follows not too far behind -- ability to grasp new ideas (p. < .12). On the other dimensions the differences, although favoring the high contact teachers, are far from being significant -- attitude toward the Volunteer, attitude toward the Peace Corps, and ease of communicating with the teacher.

Because of the lack of unequivocal significance for any of the differences, these results must be interpreted with caution. However, we think the general trend and pattern merits attention. The generally higher ratings for high contact teachers suggest that the Volunteers at this time were still favoring teachers whom they perceived as better prospects. It is intriguing that the three greatest differences, all those which showed any sign of achieving significance, concerned teaching rather than attitudes. There is a hint here that at this time the Volunteer's preferences were based on perceptions of teaching skills. Unfortunately, we have no way of knowing whether the emphasis given such characteristics, if this pattern is treated as meaningful, was greater or lesser than during the first semester, simply because we have no comparable data from the two periods. We are inclined to look upon the incongruous results on improvement as fitting this view, since it would not be surprising for even small adaptations by less adequate teachers to appear more noticeable and hence as greater improvement. On the whole, then, although teaching seemed to be a paramount factor, we found no evidence that achieving improvement in the teacher constituted a sufficient reward to increase contact by the Volunteer. The results suggest that the Volunteer simply favored "good" teachers.

School Results: For these teachers, there were two school characteristics significantly related to contact. The neighborhood itself (barrio) received a significantly higher rating for high contact teachers ($p. < .01$), and TV viewing conditions received a significantly higher rating for low contact teachers ($p. < .02$). The difference in ratings on a third dimension, the school's physical plant, approached significance, with the higher rating going to low contact teachers ($p. < .10$).

This indicates that the Volunteer gave preference to teachers in schools in relatively "nice" neighborhoods, and also gave preference on the basis of poor physical conditions for viewing (presumably, the physical plant reflects conditions which left the school with unsatisfactory viewing facilities). The latter suggests that "school development," outside of teaching itself, loomed large among the Volunteer's concerns. Apparently, he understandably chose to concentrate on the more readily detectable and treatable problems of achieving good exposure for the pupils.

Of the remaining four school characteristics rated, the high contact teachers received higher ratings on ease of travel and other teachers, and the low contact teachers received higher ratings on the director (principal) and TV reception. None of the differences, however, even approached significance and can probably be dismissed as chance variations.

Summary and Discussion: In order to investigate further the factors involved in the variation of teacher contact with Volunteers, we drew a sample of high and low contact teachers for each Volunteer in a single fairly compact area new to ETV and by interview obtained ratings from the Volunteers for the teachers and their schools on a number of dimensions. The general trend of the teacher ratings was consistent with our expectation, based on earlier findings of the first semester, that the Volunteers favored teachers whom they perceived as good prospects for ETV, with teaching at this time seemingly more important as a determinant of contact than teacher attitude. The ratings of the teachers' schools indicated that teachers whose schools were in "nice" neighborhoods and where there were physical problems in achieving good viewing conditions for the pupils also were favored.

These results amplify our earlier findings by indicating that at least later some factors other than attitude also were related to Volunteer contact, although the lack of comparable data for the two periods prohibits direct comparison with the first semester. They give further support to the view that the Volunteer utilization program requires the continual setting forth of guidelines, the establishment of policies, and attentive supervision if the Volunteers are to function as instruments of a cohesive project. In the absence of such a framework, unguided behavior makes its own rule, which may or may not further the attainment of desired project goals.

Part VIII: The First Semester's Research -- Summary and Discussion

The Peace Corps ETV Project was inaugurated in Colombia at the beginning of 1964. By June, the end of the first semester of operation, its receiving network for televised elementary instruction included about 390 schools, 2,000 teachers, and 60,000 pupils. During this period, 10 courses in different subjects for various grades were televised, with each consisting of two 15 minute telecasts weekly, for a total production output of 300 minutes of new television weekly throughout the semester. For the project, the time was one of great if harried accomplishment, many problems and frustrations , and much learning -- about Colombian education, the launching of instructional television in a developing country, the problems of making educational consulting (as opposed to teaching) effective, the demands of directing and coordinating the activities of large teams of Volunteers in a single undertaking (as opposed to administering single Volunteers in independent, if similar, activities), and many other things.

During this first semester, we conducted extensive research to learn as much as possible about the ETV Project in this initial stage in order to provide a basis for corrective policy-making, as well as to form a reservior of data on "launching" problems to assist other projects similar in one or more characteristics. We also intended our studies as a foundation to assist in making future research on the Colombia project as fruitful as possible.

This report covers these studies, and some others conducted later that were directly related to them. They include a field experiment on the project's initial instructional impact, a two-survey panel study

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of teacher attitudes and relations with Volunteers, interviews with Volunteers and teachers focused on the pattern of interaction that evolved in the Peace Corps utilization program, an examination of the Volunteer's concerns and experiences based on his reports of challenges, problems feared, and "critical incidents," and follow-up studies on the effects of teacher and pupil experience with television on pupil achievement and on the sources of inequalities in Volunteer contact with teachers.

In the field experiment, the instructional impact on pupil achievement of the entire televised curriculum and the utilization Volunteer's consulting with teachers was assessed in the analysis of approximately 7,100 tests from pupils in 178 classes representing instruction under one of four conditions -- without television, with television only, with television and a restricted amount of help for the teacher from the Volunteer, and with television and a full amount (as defined by the project's normal operation at the time) of help for the teacher from the Volunteer -- in each of nine televised elementary courses (because of testing problems with first grade children, results were not obtained for one course). Principal findings were:

1) When the data were analyzed overall and treated so that each course served as an equal representative of the project, they indicated that the project had led to increased achievement by pupils. Such an inference was permitted by statistically significant variation among the scores for all four conditions when examined together, and the trend of these scores -- which were higher in the three project conditions than in the "no television" baseline. However, none of the

differences between individual conditions was great enough to achieve significance when taken alone, and it was not possible to attribute superior pupil achievement to the counsel given teachers by the utilization Volunteer.

2) When the data were analyzed separately for each course, they indicated that two courses -- Natural Science IV and Lenguaje II -- individually had led to increased achievement by pupils. For each, there was statistically significant variation among the scores for all four conditions when examined together, and those for the three project conditions were higher than those for the "no television" baseline with the scores increasing progressively from one condition to another. For each, too, the only difference between individual conditions that was significant was between "television with a full amount of Volunteer help," representing the project at maximum effort, and the "no television" baseline.

3) Despite the many practical difficulties in inaugurating the project which likely led to the loss of hours in schools presumably ordinarily devoted to instruction, there was no evidence that the shift to televised instruction involved any cost in temporarily lowered achievement by pupils.

These results suggested that the project could not take its instructional effectiveness for granted. Even when variation among the scores for the conditions was statistically significant, actual differences were very small. In addition, despite the positive trend of the scores when the results as a whole were analyzed, in only two of the nine televised courses did results demonstrating significantly greater achievement emerge. Moreover, in neither the overall or individual course analysis did the counsel given teachers by Volunteers lead to significantly greater pupil achievement than occurred among the "television only" pupils. Our subjective study of the Volunteers made in the course of conducting the research led us to conclude that one of the major causes of this early lack of instructional effectiveness for the Volunteers was inaccurate and incomplete specification of the utilization Volunteer's role by the Peace Corps. Contrary to expectations, he spent much of his time on "school development" simply to achieve regular viewing under satisfactory conditions. Also, because of lack of experience or training in teaching, he had no clear or firmly grasped body of knowledge or skills to communicate to the teacher. As a consequence of these findings, we were led to focus much of our later research on the role and effectiveness of the utilization Volunteer. In order to avoid misunderstanding, we should probably add at this juncture that by the end of our two years of study in Colombia, we were thoroughly convinced that the utilization Volunteer fulfills an absolutely essential function in this kind of undertaking -- both in "school development" and in giving counsel on teaching methods.

In the panel study, we surveyed the same group of teachers before and again at the end of their first semester of using television in the classroom. In order to learn of the teacher's perspective on the project, we analyzed their end-of-semester reports, and in order to learn about the dynamics of Volunteer-teacher interaction and changes in teacher preconceptions over the semester, we analyzed replies from both points in time. About 250 teachers were involved, including some from schools given special treatment in the field experiment, but except when we were interested in the relationship between replies whatever the circumstances, the results were based on the answers of slightly over 200 teachers from schools receiving ordinary treatment in order to fairly reflect the project's normal operation during the first semester. Principal findings were:

1) Marked differences existed among teachers in their contact over the semester with utilization Volunteers assigned to work with them, and this was true for teachers in the same school. In short, many teachers were left out of this Volunteer program. This suggested that the school was not the ideal unit for organizing such a consulting service if fairly equal contact for individual teachers was desired.

2) The Volunteers tended to choose to work more closely with teachers who initially had more favorable attitudes. This suggested that if guidelines were not set forth, practice would make policy in accord with personal whim.

3) When initial teacher attitudes -- whether relatively favorable or unfavorable -- were controlled, frequent contact with the Volunteer appeared to have a favorable impact on teacher attitudes. This suggested that at the least the efforts of the Volunteer could help build a favorable foundation for achieving desired changes in teaching practices.

4) The most frequently cited of several possible inadequacies in Volunteer preparation or training was that the Volunteer did not supply teaching aids other than television, suggesting that extensive orientation of teachers on the utilization Volunteer's role was necessary if it were not to be misunderstood. The danger of such misunderstanding

was highlighted by a significant relationship between making such a complaint about the Volunteer and feeling that the Volunteer did not live up to his capability to help the teacher. Language skill also was fairly frequently cited as inadequate for the Volunteer to give much help, emphasizing the particularly crucial role of language when a Volunteer must work with a wide range of persons for brief periods rather than settling in with a cohesive community for a longer period.

5) The teachers tended to perceive the use of television as increasing their status in the eyes of parents, officials, and other teachers. This feeling provides a favorable basis for achieving teacher cooperation. However, the fact that the status benefits of using television were seen by the teachers as least among their working colleagues, and the relationship between believing that television involves added work and not perceiving a status benefit among other teachers, suggested that this favorable attitude might be endangered unless the new duties associated with television were characterized as being different in kind rather than greater in quantity.

6) There was some disillusionment over the project among the teachers, indicated by significant numbers of negative shifts in attitude. This was particularly marked in regard to the help the Volunteer could provide. Although there might have been a downward adjustment of preconceptions under any circumstances, this fall from grace of the Volunteer probably also reflects the same lack of definition in the role conceived for him by the Peace Corps that was reflected in the field experiment results. This was simply a danger signal that this aspect of the program

needed reassessment. However, it should be noted that the numbers of teachers making relatively favorable replies to this and other questions for which negative shifts occurred remained quite high even despite the shifts. Put another way, in absolute terms the attitudes of the teachers on the whole seemed fairly favorable.

7) The belief of the teachers that television could be a powerful tool for teaching remained strong over the semester. Such a belief, like other favorable attitudes, provides a valuable foundation for gaining cooperation in changing teaching methods and other changes in practices made desirable by television. Given the many problems of this first semester, and the context of negative shifts in attitudes, the firmness of these teachers' belief in the power of the medium is an important finding. Interpreted broadly, it reflects a wish on the part of the teachers to step quickly into the twentieth century, and although it may be partly based on an indiscriminate faith in the magic of electronics it can only be taken as a cuase for optimism.

In order to find out how the role of the utilization Volunteer had evolved during the first semester, we interviewed 30 utilization Volunteers in Bogota and Cundinamarca and 19 teachers in Bogota, each randomly selected from the teachers served by a different Volunteer. This gave us an in-depth view of this service program from the perspectives of both worker and client.

We found that most of the Volunteers either had found the day-to-day job of utilization different from what they had expected or that they had had no clear idea in advance of what to expect. On the whole, they were surprised that they had to devote so much of their time to achieving regular viewing under satisfactory conditions in the schools, that they had to be so concerned with persuasion and the gaining of compliance from teachers to achieve the project's goals, and that the teachers were not more willing and eager to accept and use advice on teaching.

We found that most Volunteers felt considerable frustration in their work, especially in regard to improving teaching practices, although most felt they had brought about at least some desirable changes in the practices of a few teachers. Most felt that their effectiveness was hampered because they lacked experience or training in education, and many said that they did not feel that they were really capable of giving their teachers much useful advice.

We found considerable variation in the techniques and procedures used by various Volunteers in their work. Most of these seemed to have been developed entirely on an ad hoc basis, with very little forethought. Because their backgrounds and training had not left them with a set of ideas that they could use to analyze their problems, the Volunteers apparently tumbled casually into a way of working without giving much throught to it. Although they were concerned with reorganizing schools around television, and with persuading teachers to change their behavior, the Volunteers gave little systematic thought either to the school as an organization or the teacher as a target for persuasion.

As to what the Volunteers did, we found that some made use of the hierarchy in each school by working primarily through directors (principals), while others customarily skirted it and dealt directly with individual teachers. Some attempted to use group consensus to reinforce changes in a school by holding frequent meetings, while others did not. Almost all spent much of their time observing teachers at work, and many, presumably doubting their competence and fearful of losing rapport, failed to follow this up by offering advice to improve what they saw. Division of time varied considerably from Volunteer to Volunteer, with some spreading their attention over a large number of schools and teachers, giving a little time to each, and others spending whole mornings or more with one teacher or school. Partly this was due to differences in the ease of transportation from school to school, but it was also due to differences in what individual Volunteers found convenient or satisfying. At the time, televised instruction was only being given in the mornings, and because there were no guidelines to the contrary many Volunteers devoted their afternoons to projects outside the schools which they felt were more suited to their skills.

The teachers filled out the picture on work procedures given by the Volunteers, and altered it in one important respect. Of the 19 teachers, seven reported that they had had almost no contact with their Volunteer. This corroborated the survey finding that many teachers had been left out of the utilization program. It also indicated that Volunteer reports cannot be considered an entirely accurate guide to worker-client contact, for the Volunteers' replies would not have brought this fact to our attention. Interestingly enough, a majority of those who had had some contact with their Volunteer expressed fulsome praise of his efforts to assist them in their first use of classroom television.

In our examination of Volunteer reports made after the first few weeks on the job in Colombia on the major challenges they had faced and the problems over which they were most worried, we found a concern over gaining support and cooperation for the project from the Colombians with whom they worked. "Critical incidents" gathered at the end of the semester from the utilization Volunteers on the problems they had encountered indicated that during the semester winning support and cooperation from teachers and school officials had been a major part of their job.

In a follow-up to the field experiment, we tested pupils in the classes of teachers which had been tested early in 1964 again in early 1965 in order to learn if experience with television had led to increased instructional skill among teachers or increased ability to learn from television among pupils. Except for the passage of time and the pupils, everything at both times was the same -- the teachers, the television, and the tests. Although we had results on 44 classes from 1964, only results for 10 classes could be obtained from both periods because of teacher transfers over the year.

The scores for 1965 on the whole were slightly higher, but the difference failed to achieve statistical significance, and the lack of pupils who had not had experience in learning from television made it necesssary to restrict the analysis to results from pupils who had had such experience in the second testing so that improvement anyway could not be unambiguously attributed to superior teaching. Pupils who had had no prior experience in learning from television tended to make lower scores, but not to a statistically significant extent.

We do not interpret these non-significant results as indicating that experience with television does not lead to increased instructional skill or ability to learn. In regard to teachers, they only indicate that such gains are hard won in innovative projects of this kind, and that such gains did not occur consistently for these teachers, at least as measured by pupil achievement. As our other data indicate, these teachers started television when efforts to improve their teaching, despite the large number of Volunteers involved, were weak, so the results reflect circumstances unlikely on their face to lead to much improvement. Unfortunately, changes in the televised curriculum prohibited repeating the design under other circumstances so that we don't have any sensitive measures of possible improvement. In regard to the pupils, the number in these classes without prior television experience was relatively small and we take the near-significance of the results as highly suggestive that experience is associated with superior achievement.

In a follow-up on the factors involved in the favoring by Volunteers of certain teachers for contact, in 1965 we interviewed Volunteers,in a compact area where transportation was comparatively irrelevant,for their perceptions of teachers and their schools for teachers who, by the teachers' independent report, had had a high or low degree of contact with Volunteers. We found some indication that favored teachers were those considered "good" by Volunteers, that the teacher in a school in a "nice" neighborhood had a better chance of receiving attention, as did the teacher in a school where there were difficulties in achieving good viewing conditions. The favoring of "good" teachers and "nice" neighborhoods emphasized the need for guidelines for the Volunteer.

During its first half year, the Peace Corps ETV Project accomplished a great deal in a relatively short time. In looking at the project through our research, it is important to recognize that the research implicitly accepts these accomplishments -- the televising of an ambitious schedule, and the building of a sizable receiving network of schools -- as a given. They should not be overlooked simply because they are obvious. Understandably, the project encountered many problems. We say "understandably" because there was so much that was either new or relatively unfamiliar to the Peace Corps -- large-scale instructional television, primary education in Latin America, and the directing of the large team of utilization Volunteers as part of a larger enterprise. Because of its nature, our research reflects many of these problems. If it did not, it would lack utility for this or some future project with similar characteristics.

FOOTNOTES

[1] "Utilization" in connection with instructional television usually refers to the use made of the televised material by the classroom teacher in his own teaching. In the Peace Corps project, this generally meant the complementary instruction provided by the classroom teacher directly before and after each telecast -- a 15 minute "motivation" before, and a 15 minute "follow-up" afterwards. The term was also used to designate the Volunteers assigned to working with teachers in their schools to insure the effective use of the television at the point of reception.

[2] For a fuller picture of the project as a whole, and a review of its development since its inauguration, see Report No. 1 (*), this series. By the end of 1966, the telecasting of instruction to students in Normal (teacher training) schools, and to adults in literacy and health, had begun. The same report contains additional material on the plight of Colombia's public primary schools.

[3] Satisfactory solutions to these problems were not as simple as might be supposed. For example, in the case of conflict with a play period, when the class whose program was on the air was brought in early from play to watch, the goal of learning from the television was only partly implemented, for frequently the televised sound then had to compete with the playground noises of the other pupils.

[4] A concise review of such findings is given by Wilbur Schramm, "What We Know About Learning From Instructional Television," Schramm, ed. Educational Television, The Next Ten Years (Stanford: Institute for Communication Research, 1962), pp. 52-76.

[5] Test production was unexpectedly slow because the Agency for International Development-supplied Multilith on which the ETV Project relied for reproducing materials, as a new machine, required constant readjustment by factory representatives during its break-in; the Colombian assigned to operate it failed to learn quickly how to operate it; and a spate of local power failures frequently rendered it inoperative. Distribution outside of Bogota was made impossible by the closing of the roads by the army to deter terrorist activity during an election.

[6] In some cases, the Volunteer's schedule was so tight that tests could not be delivered to a school. In others, a single teacher in a school refused cooperation, was absent, or neglected to give the tests despite the Volunteer's urging. There were also classes for which scores and/or the report of the Volunteer left little doubt that the teacher had supplied the class with answers, or the Volunteer's schedule did not permit monitoring and he did not have sufficient confidence in the teacher to allow independent administration.

(*) Titles are listed in Reports in This Series, at the end of this volume.

FOOTNOTES continued

[7] The degrees of freedom (df) shown in the table for assessing the significance of the F-ratio of 5.29 in this analysis are 3 and 32, which treats each course score within a condition as an independent measure. However, unavoidably under the circumstances, when more than one course was televised for a grade some classes contributed scores for more than one subject, although usually any one course score also encompassed classes not elsewhere represented. If the degrees of freedom are calculated on the basis of the five grades rather than the nine courses, so that no overlap could occur, they would be 3 and 16, which for the same F-ratio leads to p. = .01 also. With either approach, the results are the same.

[8] For a thorough review of the teacher reactions to all the programming of 1964 and 1965, see Report No. 8 (*), this series.

[9] Research concerned with the role of the utilization Volunteer in the ETV Project appears in several other reports in this series. For the results of a field experiment testing the relative effectiveness of teaching techniques which he might urge teachers to use, see Report No. 3 (*); for a study of his effectiveness and impact, see Report No. 4 (*); for an analysis of the structure and problems of his job, along with a large number of first hand reports from the Volunteers themselves, see Report No. 5 (*); for data on the effectiveness and potential importance of his work in using television for teacher education, see Report No. 6 (*); and for the results of an experiment on increasing his effectiveness in winning compliance from teachers, see Report No. 7 (*). In addition to these studies directly concerned with his role, there is a review of his place in schemes for providing an undertaking such as the ETV Project with feedback, both as provider and subject, in Report No. 10 (*), and of course data on the utilization Volunteer also appears in Report No. 1 (*), which is concerned with the development of the project as a whole, and in Report No. 9 (*), which is concerned with the effects of ETV service on the Volunteers.

[10] So that the percentages would represent the most accurate possible estimate of the project's normal operations and be compatible with other attitude and Volunteer contact data, the data in Table 2:6 are only from teachers in schools receiving an ordinary (or "full") amount of attention from utilization Volunteers. However, to test the proposition that later contact was related to initial favorable attitudes it would be legitimate to include teachers from schools designated in the field experiment described earlier for "restricted" or "no" Volunteer attention, since in both categories there undoubtedly was some variation in contact within schools (it will be recalled that the "no" attention category required enough to maintain television operation) and presumably this contact too

(*) Titles are listed in Reports in This Series, at the end of this volume.

FOOTNOTES continued

would be affected by determining variables. When the total N is increased in this way, to 232, $X^2 = 4.01$ ($p.<.05$, two-tailed). Thus, the finding should not be rejected by the reader who would demand a two-tailed test on the grounds that the chi-square for the data in Table 2:6 leads to a two-tailed $p.<.07$, which narrowly misses the arbitrary criterion for significance of $p. =$ or $<.05$.

[11] This analysis includes all teachers since we are interested in the effect of contact, whatever its circumstances.

[12] Volunteer interviewers were George Comstock and Peter Gyfteas. Teacher interviewer was Lucia Cock.

[13] For research on teacher training by television, see Report No. 6 (*), this series.

[14] For more on the activities of Volunteer leaders, called ETV Coordinators, see Report No. 1 (*), this series.

[15] This is consistent with survey findings on the teachers' reactions to the various courses telecast for pupils, and has some rather broad implications. See Report No. 8 (*), this series.

[16] For Volunteer questionnaire data, see Report No. 9 (*), and for "critical incident" data, see Report No. 5 (*), both this series.

[17] Interviewers were George Comstock and Peter Gyfteas.

[18] For a review of the project's adaptations to meet problems, including the Colombian government's failure to provide utilization counterparts, see Report No. 1 (*), this series.

[19] We are grateful to John Hoffman, Volunteer ETV Coordinator for Cundinamarca, for a suggestion which led to this study, and for supervising the data collection.

[20] The interviewer was Peter Gyfteas.

(*)Titles are listed in Reports in This Series, at the end of this volume.

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Appendix A: Example of Pupil Test (with a sampling of items)

All the pupil tests had the same format as this one for Natural Science III:

Materia: Ciencias Naturales, Curso III Puntaje: ____________

Alumno: ____________________

Maestro: ____________________ Escuela: ____________

Instrucciones: Conteste las siguientes preguntas haciendo un círculo alrededor de la letra correspondiente a la respuesta que considere correcta.

Ejemplo: Cuál de los siguientes es el nombre de un animal?

a) carro
[✓ b)] perro
c) árbol
d) rosa

1. Los peces tienen un medio de vida:
a) acúatica
b) terrestre
c) aerea
d) subterranea

5. Cuando decimos que los peces son animales ovíparos queremos decir que:
a) se alimentan solo de plantas
b) toman lece
c) que el pez vive en el agua
d) todo lo anterior

15. El hombre:
a) utiliza las plantas
b) no utiliza las plantas
c) no le gustan las plantas
d) no necesita las plantas

20. Las plantas se diferencian de los animales porque:
a) tienen colores diferentes
b) tienen tamaños diferentes
c) necesitan alimento completamente diferente
d) nada de lo anterior

25. La palabra geotropismo se refiere a:
a) el crecimento de la raiz hacia abajo
b) la división de la ráiz
c) el crecimento de la raíz hacia arriba
d) todo lo anterior

30. La savia sin elaborar se forma en:
a) la hoja
b) la raíz
c) el tallo
d) todas estas partes

35. Un ejemplo de una raiz subterránea es:
a) el maíz
b) la orquídea
c) el loto
d) todas las anteriores

40. La raíz del trigo se clasifica como:
a) fibrosa
b) tuberosa
c) pivotante
d) ninguna de las anteriores

Appendix B: The Cheating Study

There were many reasons to think that pupils and teachers might "cheat" during our tests. We were warned that cheating on tests carries no stigma in Colombian schools, moreover pupils are crowded together, and it is easy for one pupil to glance at another's paper. In addition, teachers might think the test results would be used to evaluate them personally, no matter what they were told, and give their classes the answers. We decided to look closely at the cheating problem to see how serious its threat was and what we might do about it.

As to pupil cheating, we incorporated a design to give information on its impact on scores for a whole group, such as we would be using later, in our trial testing early in the semester. Tests were administered under three conditions to 12 classes in one subject, fifth grade Natural Science, in Bogota:

a) Alternate forms of the test (same items, but randomly different ordering of items on each), with Volunteer monitoring as well as teacher supervision of the exam;

b) Alternate forms, as above, with teacher supervision only;

c) A single form with teacher supervision only.

Presumably, cheating would increase with its ease. In each of the three conditions the ease with which a pupil could cheat increased -- alternate forms with double supervision (condition a) would be the most difficult; then, alternate forms with one-person supervision (condition b); and, finally, a single form with one-person supervision (condition c). Each was a possible procedure for future administration; however, the use of alternate forms would complicate problems of production, distribution and administration, and double monitoring everywhere would impose a heavy burden on Volunteers and severely limit our testing capability. If there was a threat posed by pupil cheating that could be contained, we would expect higher scores where cheating was easier:

Table 2:B:1: Three Different Degrees of Control on Pupil Cheating and Test Performance.

Condition:	(a)	(b)	(c)
	Alternate Forms, Double Monitoring (Volunteer and Teacher)	Alternate Forms, One-Person Monitoring (Teacher only)	Single Form, One-Person Monitoring (Teacher only)
Mean Score	20.2	19.9	20.3
N**=	(148)	(162)	(99)

all possible differences: p. = n.s.

*Number of cases on which mean score is based.

The results are shown in Table 2:B:1. As can be seen, there are no systematic differences between scores. Thus, pupil cheating did not seem to pose a serious bar to our proposed work. Cheating probably occurred, and quite possibly varied in frequency as expected among the conditions. If so, some pupils gained while some lost, without affecting the overall score for the group. Since it was the group mean which we intended to use, this meant a) that pupil cheating, even if prevalent, did not pose an overwhelming threat, and b) that alternate forms or universal Volunteer monitoring were not essential.

As to teacher cheating -- providing the answers to the class by the teachers -- we interviewed Volunteers after the tests, and looked carefully at all the trial test results, which involved over 150 classes in six subjects. It was clear that a small minority of teachers indeed had "cheated." It was easy to tell. The means for the classes were not only very high, but almost every pupil got the same total score and missed the same items. Thus, to reduce the threat of teacher cheating, it was decided that teachers in whom a Volunteer did not have complete confidence should be monitored during the administration of later tests.

Appendix C: Survey Procedures and Sampling

The first survey took place just before telecasting of courses began in February, 1964. It was a relatively ambitious survey in size, and had two functions: a) to obtain data on the attitudes of Colombian teachers who would be using television before they had had any experience with the Peace Corps ETV Project, and b) to obtain a list of Colombian teachers using TV for the drawing of a later sample. The second survey took place in late May and early June, at the end of the first semester of ETV, and was based on a sub-sample drawn from the list of teachers responding to the first survey. Its purpose was to obtain data on the attitudes of teachers after they had had experience with the ETV project.

The First Survey: A prerequisite for a good survey is a list of the population to be represented, from which a non-biased sample can be drawn. In regard to Colombian teachers to be included in the Peace Corps ETV project in Colombia, this prerequisite posed a difficult hurdle. Lists of teachers are never likely to be up-to-date in Colombia. However, since it was the beginning of a school year, there were no lists of teachers at all. Lists of schools did not give reliable information on the grades taught or number of teachers for each school, characteristics which vary among the schools. There were lists of schools for for the installation of TV, but these changed frequently during this initial period. A school designated for TV might be eliminated because of problems of security for the TV set, lack of electricity, or lack of cooperation; a school previously not designated might get TV because of a favorable combination of these characteristics, or the ad hoc judgment of a maintenance Volunteer. Sometimes, decisions would be made at the site, but records would not be adjusted for days. And even when installation was ascertained as a fact, the grades taught and number of teachers to be involved in the ETV program remained moot. Perhaps the problems posed are best illustrated by the following fact: some schools officially designated in Bogota for TV installation were never located by the maintenance Volunteers because the addresses supplied proved wrong.

As a result, a method was devised to circumvent this absence of information by making use of the knowledge of the persons who knew the most about which schools had TV at any given moment -- the utilization Volunteers. This sampling procedure was as follows:

1) Each utilization Volunteer was asked to list all the schools assigned to him which were ready to start with ETV in a random order -- by first writing the schools' names on slips of paper, shuffling or mixing, drawing them one by one, and listing them.

2) Next, the Volunteer was asked to record numbers representing the five elementary grades in a random order beside the name of each school -- by first writing the numbers 1 through 5 on slips of paper, shuffling or mixing, drawing them one by one, and listing them beside each school name. This procedure was repeated for each school listed.

As a result, each Volunteer had a list of schools designated for ETV arranged in random order, with the possible grades for each also listed in random order.

3) The Volunteer was then instructed to survey the schools in the order listed on the Volunteer's now randomized roster, and to survey teachers for the grades at each school in the now random order listed

after each school's name on the Volunteer's roster. In addition, the Volunteer was instructed to interview no more than three teachers in one school before moving on to the next school on his roster. This was to insure that a wide range of teachers from as many schools as possible would be included, since the Volunteer was unlikely to have time or opportunity to reach all the teachers. As a result, the Volunteer contacted teachers on a randomized basis, with each teacher, within the limits possible, having an equal chance of being asked.

This randomization was intended to reduce bias in selecting schools or teachers within a school. The limit on number of teachers to be initially interviewed in one school was to insure coverage of a fairly wide range of schools, on the assumption that a Volunteer would not be able to reach everyone in all his schools. The system was to deter the Volunteer from surveying only in convenient schools and only surveying teachers he liked. When the Volunteer visited a school, of course, he selected teachers for the survey from those available; the randomization within the school only served when there were more than three teachers available. Volunteer reports and the school and teacher coverage obtained indicated that the system worked very well.

The questionnaire was initially designed for use as an interview schedule, with the Volunteer reading the questions to the teacher and, except for a few open-end items, presenting the teacher with several alternative replies. The Volunteer then would check the appropriate response on the questionnaire. The reason for using an interview was to increase the likelihood of obtaining a response from the contacted teacher. However, Volunteers soon found that cooperation was not a problem. The teacher was willing to accept the form as a questionnaire, returning it to the Volunteer when completed, and its use of either open-end or multiple choice items which did not require probing by the interviewer made the questionnaire readily adaptable to this procedure. Since the teacher would expect the Volunteer to see her responses in either case, it did not seem likely that a change in mid-survey would distort results by drastically altering the effect of interviewer or respondent. The self-completion procedure markedly increased the number of teachers which one Volunteer could cover, thus increasing the usefulness of the survey both in regard to data compilation and building a list for future sampling. Moreover, some Volunteers found their Spanish at this point inadequate for handling the non-structured conversation and explanations which an interview involved. For most of the survey, then, the form was used as a questionnaire, left with the teachers with instructions, and later picked up by the Volunteer.

Completed questionnaires were obtained from about 750 teachers, an average of 16 for each of the 45 utilization Volunteers then assigned to the project. Individual Volunteer productivity was actually somewhat higher, since some Volunteers did not interview because the schools to which they had been assigned were in areas temporarily without electricity or where an opening date for the schools had not yet been set. These Volunteers had no teachers ready to use ETV. The survey was conducted in mid-February the week before telecasting began. Because of the steady increase in the number of schools with TV installed as the date for the beginning of televised instruction approached, it is difficult to say exactly what per cent of the eligible population the 750 represents. It is no less than 75 per cent, since the project began with about 1,000 teachers.

The End of the Semester Survey: For this survey, the requirement of a list was satisfied by using the list of teachers who had responded to the first survey, and a sample was drawn from it. Random methods were used in drawing the sample for the second survey, with two important qualifications: a) for Bogota, the number of teachers assigned to a Volunteer which were drawn into the sample was varied inversely with the number assigned (the mean number of teachers per Volunteer was used, with half of those above the mean sampled, and all of those below the mean), to prevent over-representation of the work of particular Volunteers; and, 2) for the campo, all teachers were included, to insure adequate representation of campo teachers, which comprised less than a third of the original 750. To be eligible for inclusion in the sample, a teacher had to be a user of TV for most of the semester. Thus, some of those selected were eliminated later because they had ceased using ETV.

The Volunteer delivered the questionnaire to the teacher, with instructions. The teacher completed it and returned it in an enclosed stamped, addressed envelope directly to the research office in Bogota. Of the total drawn who were eligible for the sample, 252 teachers, or 87 per cent returned the questionnaire. The returns of teachers who were not eligible, either because they had not responded to the first survey and should not have received a questionnaire, or because they were no longer using TV, were discarded.

Appendix D: Volunteer and Teacher Interview Forms (used at end of first semester)

The Volunteer interview schedule:

Volunteer: ____________________

Barrios or Sector: ____________________

Interviewer: ____________________

Interviewer: This interview is part of the Stanford University-Peace Corps ETV Research Program. Its purpose is to obtain information to assist in improving the program. Your replies will be kept confidential. Material used in reports will not specify the individuals concerned.

The subject of this interview is the utilization program as it is now functioning.

1. How often would you say that you visit each of your schools in connection with the ETV program? On the average, how many times each week?

- - - - - - - - - - - - - - - - - -

2. Are there some schools which you get to less frequently? Why? How often do you visit these schools?

- - - - - - - - - - - - - - - - - -

3. When your visits are made, how long do you stay? Is is usually 10 or 15 minutes? About 30 minutes? About 45 minutes? An hour? Or longer?

- - - - - - - - - - - - - - - - - -

4. How much time do you usually spend talking to the teacher?

- - - - - - - - - - - - - - - - - -

5. As best you can remember, what is the longest time you spent with a teacher or her class?

- - - - - - - - - - - - - - - - - -

6. When you visit a teacher, what takes place? Describe a typical visit. What do you do? What does the teacher do?

- - - - - - - - - - - - - - - - - -

7. What do you usually say to the teacher?

- - - - - - - - - - - - - - - - - -

8. What does the teacher say to you? What is discussed?

- - - - - - - - - - - - - - - - - -

9. Do you always spend some time talking about education, do you sometimes exchange social pleasantries and observe the class?

- - - - - - - - - - - - - - - - - -

10. Do the teachers ever have questions for you about making better use of the television? What sort of questions? What kind of answers do you give? Could you give an example?

- - - - - - - - - - - - - - - - - -

11. Have you had any difficulty in making the teacher understand? What kinds of difficulty? Were you able to overcome it? How? Could you give an example?

- - - - - - - - - - - - - - - - - -

12. Do you think your visits have helped the teachers in making use of the television programs? In what ways?

- - - - - - - - - - - - - - - - - -

13. Are there any ways in which you feel inadequate to help your teachers? How do you think this could be overcome?

- - - - - - - - - - - - - - - - - -

14. Do you think your visits have made the teacher's job more difficult in some respects? If so, how?

- - - - - - - - - - - - - - - - - -

15. What proportion of your teachers do you find regularly watch the teacher training programs? Are there some who never watch?

- - - - - - - - - - - - - - - - - -

16. Have you been able to do anything to increase the number who watch? If so, what is it that you have done?

- - - - - - - - - - - - - - - - - -

17. Do you think the training programs help the teachers? Can you think of an instance on which a specific teacher has benefitted?

- - - - - - - - - - - - - - - - - -

18. In regard to the utilization program, in what ways has it differed from what you expected when the ETV program started?

- - - - - - - - - - - - - - - - - -

19. What effect do you think your own efforts as a utilization Volunteer will have on the teachers with whom you work? Can you see any of these results already? When do you think they will appear?

- - - - - - - - - - - - - - - - - -

20. If you could re-design the ETV utilization program, how would you change it?

- - - - - - - - - - - - - - - - - -

The teacher interview schedule:

Maestro: ______________________________

Colegio: ______________________________

Materia: ______________________________

Entrevistadora: ______________________________

Entrevistadora: Está entrevista está siendo dirigida por el grupo de Investigación de la Universidad de Stanford, quien en la actualidad estudia el nuevo Programa de Television Educative en Colombia. El objetivo de está entrevista es conseguir informacion para ayudar al perfeccionamiento del programa. Toda la información suministrada por Ud. será considerada confidencial. El Programa de Investigación de la Universidad de Stanford tiene total respaldo y cooperación del Ministerio de Educación Nacional de Colombia, pero los informes sobre resultados o investigaciones hechas por Stanford nunca incluiran la identidad de las personas que en una u otra forma han tomado parte en el proyecto. Sus opiniones personales y un informe exacto de los hechos es lo que queremos. Al prestarnos su ayuda, Ud. esta cooperando en el incremento de la educacion en Colombia.

En primer termino quisiera hablar con Ud. sobre la forma come está en la actualidad operando el grupo de voluntarios de Cuerpo de Paz pertenencientes al Programa de utilizacion, luego hablaremos sobre otros aspectos del Programa de Televisión Educativa.

1. Con que frecuencia diría Ud. que un Voluntario de Cuerpo de Paz lo visita en relacion con el Programa de televisión Educativa? En promedio, cuantas visitas le hace a la semana?

- - - - - - - - - - - - - - - - - -

2. Cuando el Voluntario hace su visita, durante cuanto tiempo permanece con Ud.? Incluya el tiempo que el está en su clase, así como también él tiempo durante que hable con Ud. Es generalmente de 10 a 15 minutos? o unos 30 minutos? o mas de una hora?

- - - - - - - - - - - - - - - - - -

3. Recuerda Ud. cuál es el período más largo que el Voluntario ha permanecido con Ud.? Incluya de nuevo, el tiempo en que él está en su clase, así como también el tiempo durante el que está hablando con Ud.

- - - - - - - - - - - - - - - - - -

4. Quando un Voluntario de Cuerpo de Paz lo visita, qué se origina generalmente? Describa una visita ordinaria. Qué hace el Voluntario?

- - - - - - - - - - - - - - - - - -

5. Qué le dice el Voluntario a Ud.? Sobre qué hablan?

6. Generalmente qué le dice Ud. al voluntario?

----

7. Fuera del tiempo en que el Voluntario permanece observando su clase, durante quanto tiempo permanece hablando con Ud. curando él le hace una visita? Generalmente 5 minutos? 10 minutos? un cuarto de hora? media hora? o mas?

----

8. Habla el voluntario con Ud. durante algunos minutos sobre educación, o algunas veces solamente se limita a hacer una agradable charla social y a observar como dirige Ud. la clase?

----

9. Hace Ud. algunas preguntas al Voluntario sobre el modo de utilizar los programas de televisión para enseñar en su clase? Qué clase de preguntas? Puede Ud. darnos un ejemplo? Que clase de respuesta recibe Ud.?

----

10. Cree Ud. que las visitas que le hacen los voluntarios le han ayudado en la utilización de los programas de televisión? En qué forma?

----

11. Cree Ud. que las visitas de los Voluntarios le dificultan la enseñanza en algunos aspectos? Cómo?

----

12. Qué problemas ha tenido Ud. al utilizar los programas de televisión en la enseñanza?

----

13. Ha discutido estos problemas con el Voluntario? Si la respuesta es afirmativa, qué le ha aconsejado el Voluntario? Si la respuesta es negative, por qué no ha consultado al Voluntario?

----

14. Ha tenido Ud. alguna dificultad para hacer comprender al Voluntario sus problemas sobre enseñanza? Qué clase de dificultad? Ha podido Ud. sobrepasar este dificultad? Cómo? Puede Ud. dar un ejemplo?

----

15. A muchos maestros se les dificulta arreglar su horario para así poder ver los programas que para maestros se presentan por las tardes por la televisión, ha podido Ud ver estos programas? Con qué frequencia? Qué problemas tiene Ud. para no poder ver estos programas?

----

16. Cree Ud. que estos programas le ayudan? En qué forma?

----

17. En qué forma cree Ud. que estos programas pueden mejorar? Hay algo específico que a Ud. le gusta de los programas? Hay algo específico que le desagrada del mismo?

18. Cree Ud. que podría recibir más ayuda de la que está recibiendo sobre la utilización de la televisión? Por parte del Voluntario? Por parte de alguna otre persona? Qué clase de ayuda?

- - - - - - - - - - - - - - - - - - -

19. Existe alguna persona o grupo con el aue Ud. quisiera tener mayor contacto que el que tiene en el presente? Diga por qué?

- - - - - - - - - - - - - - - - - - -

20. Hay algo relacionado con el programa de televisión sobre lo que Ud. quisera recibir más informacion? Qué es?

- - - - - - - - - - - - - - - - - - -

21. En relación con las visitas de los Voluntarios del Cuerpo de Pas pertenencientes al grupo de Utilización, en qué forma se han desarrollado los hechos diferente de la que Ud. esperaba cuando el Programa de Televisión Educative comenso?

- - - - - - - - - - - - - - - - - - -

22. En relación con los programas para entrenear telemaestros, en que forma estos han divergido con lo que Ud. esperaba cuando el Programa de Televisión Educativa comensó?

- - - - - - - - - - - - - - - - - - -

Appendix E: Volunteer Questionnaire Item on "Challenges," the Problem Checklist, and the Interview Form for First Semester "Critical Incidents"

The item on "challenges":

What particular incident thus far would you single out as having presented you with the greatest challenge as a Peace Corps Volunteer? Please describe:____

____

The problem checklist:

How do you feel about the following? (Place a check in the appropriate column for each item.)

	A serious problem	A minor problem	No problem at all	If you checked "serious problem," explain here:
a) Support from Colombian officials				
b) Ability to communicate in Spanish				
c) Health				
d) Ability to see results				
e) Living allowances				
f) My technical skills for the job				
g) Keeping "problem" Volunteers in Colombia				
h) Amount of visits, attention from staff				
i) Friendliness of local people				
j) Dangers other than health				
k) Other problems (write in:)				

The "critical incident" interview schedule:

Peace Corps Volunteer Interview #2

Volunteer: ____

Assignment: ____

Interviewer: ____

Interviewer: This interview is part of the Stanford University Peace Corps ETV Research program. It is concerned with your experiences with Colombians in attempting to do your job. Its purpose is to record your experiences, so that future Volunteers with similar assignments may be better prepared for them. Since the contents are likely to be used in narrative form, it may prove desirable to use your name in connection with the material you provide. After the interview is completed, you may let us know whether you would object to the use of your name; whatever your wish it will be respected.

- - - - - - - - - - - - - - - - - -

1. What was the first difficulty or problem that you can recall that you had in working with a Colombian in your Peace Corps assignment? What did it concern? What happened? What did you do to affect a solution? Now, that you have had more experience, would you do the same thing again? If not, what would you do instead.

- - - - - - - - - - - - - - - - - -

2. What other difficulties or problems in working with Colombians can you recall? What did they concern? What happened? What did you do to affect a solution? Would you do the same thing again? If not, what would you do instead?

- - - - - - - - - - - - - - - - - -

3. If you could advise a Volunteer who was going to take on an assignment identical to yours in similar circumstances, what would you tell him? What should he do first, so as to be better able to do his job? What difficulties or problems should he expect to encounter? What solutions should he be prepared to undertake? Is there anything you would do, as a result of your experience, which you did not do?

- - - - - - - - - - - - - - - - - -

4. If you could advise a Volunteer who was going to take over the assignment you now have, what would you tell him? What difficulties or problems should he be alert to? What solutions should he be prepared to undertake?

- - - - - - - - - - - - - - - - - -

Appendix F: Interview Form Used To Obtain Teacher Ratings from Volunteers

Teacher Evaluation: We have selected a small sample of the teachers who returned our survey questionnaire for further study. The first step in this study is to find out what you think of these teachers. Of course, your replies will be kept confidential -- both from teachers and from anyone in the Peace Corps.

The teacher I want to ask you about now is: ____________________.
For the most part, I will ask you to compare this teacher with other teachers with whom you've worked.

Much worse = 1   Somewhat worse = 2   About the same = 3   Somewhat better = 4   Much better = 5

The teacher:

(Comments)

1) Teaching ability ____ ______________________________

2) Ability to grasp new ideas ____ ______________________________

3) Utilization skill ____ ______________________________

4) Improvement since you began ____ ______________________________

5) Ease of communicating ____ ______________________________

6) Attitude toward you, personally ____ ______________________________

7) Attitude toward Peace Corps ____ ______________________________

The school and other teachers:

8) Ease of travel ____ ______________________________

9) Director ____ ______________________________

10) Physical plant ____ ______________________________

11) Barrio ____ ______________________________

12) TV Reception ____ ______________________________

13) TV Viewing conditions ____ ______________________________

14) Other teachers ____ ______________________________

---

15) How would you describe this teacher to a new Volunteer who was going to work in this school?

Reports In This Series

This series supplants all previous reports on the two years of research conducted on the Peace Corps Educational Television Project in Colombia. There are 12 volumes -- 10 research reports, each dealing with a different aspect of the project, plus An Introduction, concerned with the organization and conduct of the research, and a concluding Overview, containing a summary of the major findings and some general observations on the project.

The title of the series: The Peace Corps Educational Television Project in Colombia -- Two Years of Research.

The individual volumes:

An Introduction to Research Reports No. 1-10.

Report No. 1:	The Project as a Whole -- Organization, Expansion, and Adaptation.
Report No. 2:	The Project's First Semester -- Pupil Achievement, Teacher Attitudes, and the Work of the Utilization Volunteer.
Report No. 3:	Improving the Effectiveness of the Utilization Volunteer and the Utilization of ETV by the Colombian Teacher.
Report No. 4:	The Colombian Teacher and the Utilization Volunteer -- Making ETV Work in the Schools of a Developing Country.
Report No. 5:	The Day-to-Day Job of the Utilization Volunteer -- Structure, Problems, and Solutions.
Report No. 6:	Instructional Television for the In-Service Training of the Colombian Teacher.
Report No. 7:	Improving the Effectiveness of Peace Corps Efforts to Change Teacher Behavior.
Report No. 8:	The Televised Curriculum and the Colombian Teacher.
Report No. 9:	The Volunteers.
Report No. 10:	Feedback to the Peace Corps on Project Progress -- Some Models and Suggestion.

An Overview of Research Reports No. 1-10.

BRIEF FACTS

The ETV Project: In 1963, the Peace Corps, with the financial support of the Agency for International Development (AID), agreed to help the Colombian government establish a nationwide educational television (ETV) system directed primarily at improving public education. The initial Peace Corps goal was to provide televised instruction for primary school pupils and their teachers. It was hoped that eventually the system could also provide instruction for adults in literacy, health, agriculture, and topics of general interest, and for students beyond the primary grades. The ultimate Peace Corps goal is to establish an ETV system operated independently by Colombia. The project was inaugurated in Colombia at the beginning of 1964. It has had two major concerns in achieving its initial goal: the production of televised courses, and the building of a receiving network of schools with television in which teachers would build their own teaching around the instructional "core" provided by the telecasts. During the project's first three years (1964-1966), the number of Volunteers assigned to the project by the Peace Corps who have worked closely with Colombians toward these goals has ranged from 66 to 88. Of these, about half a dozen have been concerned with the installation and maintenance of TV sets in schools, between slightly more than half to two-thirds working with teachers in schools on making ETV more effective, and the rest with the production of telecasts. During the first year, 10 courses were telecast for pupils, each consisting of two 15 minute telecasts a week, for a weekly total of 300 minutes, exclusive of repeated programs; during 1965 and 1966, 15 such courses were telecast, for a weekly total of 450 minutes exclusive of repeated programs. In addition, individual programs and short courses have been telecast for teachers. When telecasting began in February, 1964, the receiving network encompassed approximately 200 schools, 1,000 teachers, and 38,000 pupils; by the end of 1964, 500 schools, 4,025 teachers, and 153,000 pupils; by the end of 1965, 925 schools, 7,000 teachers, and 260,000 pupils; and by the end of this year, 1,250 schools, 8,500 teachers, and 350,000 pupils. Telecasting has been over the open network of the Instituto de Radio y Television, a semi-government agency which telecasts commercially in the evenings, and which also has provided studio facilities for ETV. To achieve its ultimate goal, the Peace Corps has been concerned with building a permanent, financially viable, and competent organization to assume the Volunteers' functions. At present, Peace Corps participation is planned to continue up to the middle of 1968. For more on the ETV Project itself, see Report No. 1: The Project as a Whole -- Organization, Expansion, and Adaptation, this series.

The Research: Because Colombia was the first country in which the Peace Corps undertook an educational television (ETV) project, it decided to provide for close, thorough, and continuing research, and late in 1963 contracted with Stanford University's Institute for Communication Research. The Institute maintained a staff in Colombia actively engaged in research for the first two years of the ETV Project, from January, 1964, through January, 1966. The titles of the final series of reports on its studies appear on the previous page. For more on the research as a whole, see An Introduction to Reports No. 1-10, this series.

Errata, Report No. 2:

On page 103, the fifth and sixth sentences should read:

> Part of the problem was certainly the newness of the ETV Project to the Colombians. However, it also seems likely that part of the problem was the lack of involvement, commitment and acceptance of the project by the persons directly affected -- teachers, intermediate and lower school officials, and others -- prior to need for their actual participation.

On page 130, the last paragraph should read:

> The 1965 scores for these teachers' classes on the whole were slightly higher, but the increase over 1964 failed to achieve statistical significance. In addition, the only way that 1965 classes homogeneous in regard to ETV could be formed was by using exclusively pupils with a semester or more of prior experience in learning from television, so that improvement could not be unambiguously attributed to increased skill solely on the part of the teachers. When the scores for the few pupils in these classes who had had no prior experience in learning from television were analyzed separately, the scores tended to be lower than the television-experienced pupils in their classes, but not to a statistically significant extent.